DSR-45/45P

RMT-DS5

SERVICE MANUAL

Self Diagnosis
Supported model

Ver 1.2 2003. 05

US Model
Canadian Model
DSR-45

AEP Model
UK Model
E Model
Australian Model
New Zealand Model
DSR-45P

R MECHANISM

SPECIFICATIONS

System

Recording format	DVCAM/DV (SP) format, rotating 2-head helical scan, digital component recording
Video signal	DSR-45: EIA STANDARD, NTSC color system DSR-45P: CCIR STANDARD, PAL colour system

Video

Quantization	8-bit
Sampling frequency	DSR-45: 13.5 MHz (4:1:1 Component) DSR-45P: 13.5 MHz (4:2:0 Component)

Audio

Quantization	12-bit (non-linear) or 16-bit (linear)
Sampling frequency	32 kHz (12-bit recording) or 48 kHz (16-bit recording)
Usable cassettes	Standard-DVCAM cassettes and Mini-DVCAM cassettes
Recording time	Standard cassette DVCAM: 184 minutes (PDV184) 180 minutes (DV270) DV: 270 minutes (PDV184/ DV270) Mini cassette DVCAM: 40 minutes (PDVM40/ DVM60) DV: 60 minutes (PDVM40/ DVM60) (We recommend that you use DVCAM cassettes.)

Clock

System	Quartz locked, digital display
Power back-up	Back-up duration: up to two weeks (after an 8-hour charge)

Inputs

VIDEO IN REF.IN	BNC type 1 Vp-p (75 ohms, unbalanced)
S VIDEO IN	Mini DIN 4-pin Luminance signal: 1 Vp-p (75 ohms, unbalanced) Chrominance signal: 0.286 Vp-p (DSR-45) 0.3 Vp-p (DSR-45P) (75 ohms unbalanced)
COMPONENT IN	Y: BNC type 1.0 Vp-p (75 ohms, unbalanced) R-Y: BNC type 0.7 Vp-p (75 ohms, unbalanced) (DSR-45: 75%, color bars / DSR-45P: 100%, colour bars) B-Y: BNC type 0.7 Vp-p (75 ohms, unbalanced) (DSR-45: 75%, color bars / DSR-45P: 100%, colour bars)
DV IN/OUT	4-pin jack (i.LINK)
AUDIO IN (CH-1 to CH-4)	Phono jack, –10/–2/+4 dBu, Impedance more than 47 kohms, unbalanced Maximum input level: DSR-45: –10 : +18 dBu (about 6 Vrms) –2 : +24 dBu (about 12.5 Vrms) +4 : +30 dBu (about 25 Vrms) DSR-45P: –10 : +16 dBu (about 5 Vrms) –2 : +22 dBu (about 10 Vrms) +4 : +28 dBu (about 20 Vrms)
TC IN	BNC type 0.5 to 18 Vp-p (time code input) 0.5 to 4 Vp-p (through output)

Outputs

MONITOR VIDEO	Phono jack, 1 Vp-p (75 ohms, unbalanced) (superimpose)
VIDEO OUT	BNC type, 1 Vp-p (75 ohms, unbalanced)
COMPONENT OUT	Y: BNC type 1.0 Vp-p (75 ohms, unbalanced) R-Y: BNC type 0.7 Vp-p (75 ohms, unbalanced) (DSR-45: 75%, color bars / DSR-45P: 100%, colour bars) B-Y: BNC type 0.7 Vp-p (75 ohms, unbalanced) (DSR-45: 75%, color bars / DSR-45P: 100%, colour bars)
S VIDEO OUT	Mini DIN 4-pin Luminance signal: 1.0 Vp-p (75 ohms, unbalanced) Chrominance signal: 0.286 Vp-p (DSR-45) 0.3 Vp-p (DSR-45P) (75 ohms, unbalanced)
AUDIO OUT (CH-1 to CH-4)	XLR 3-pin, male, +4 dBu, 600 ohms loading, balanced
MONITOR AUDIO	Phono jack
TC OUT	BNC type, 2.2 Vp-p, 600 ohms / 1.2 Vp-p, 75 ohms 0.5 to 4 Vp-p (through output, 600 ohms)
PHONES	Stereo minijack, 8 Ω

– Continued on next page –

DVCAM™ **DIGITAL VIDEO CASSETTE RECORDER**

SONY®

Remote control

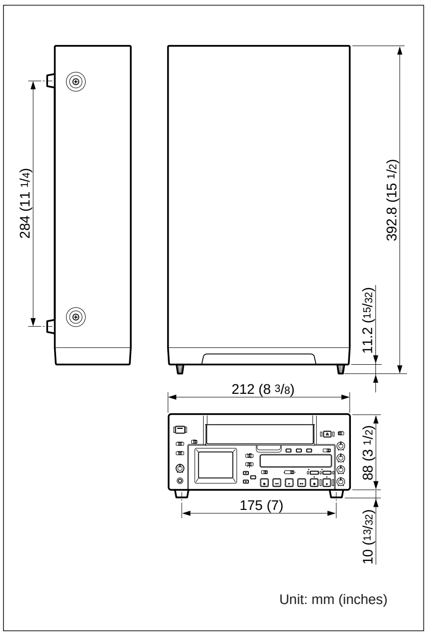
RS-232C	D-sub 9-pin (male)
RS-422A	D-sub 9-pin (female)
CONTROL S IN	Stereo minijack
LANC	Stereo mini-minijack

LCD screen

Picture	5.1 cm (2 type)
Total dot number	123 200 (560 × 220)

General

Power requirements	100 to 240 V AC, 50/60 Hz
Power consumption	22 W (during playback)
Operating temperature	5 °C to 40 °C (41 °F to 104 °F)
Storage temperature	–20 °C to +60 °C (–4 °F to +140 °F)
Dimensions	Approx. 212 × 98 × 392.8 mm (8 $^{3}/_{8}$ × 3 $^{7}/_{8}$ × 15 $^{1}/_{2}$ inches) (w/h/d, including projecting parts and controls)



Unit: mm (inches)

Mass	Approx. 4.6 kg (10 lb. 2 oz.)
Supplied accessories	Remote Commander (1) AC power cord (1) Size AA batteries (2) Cleaning cassette (1) Operating instructions Interface Manual for Programmers (1)

Design and specifications are subject to change without notice.

CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or eqivalent type.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SAFETY CHECK-OUT

(US Model only)

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
6. Check the B+ voltage to see it is at the values specified.
7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

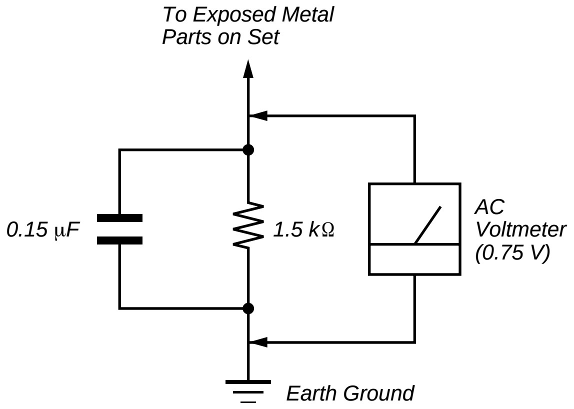


Fig. A Using AC voltmeter to check AC leakage

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

UNLEADED SOLDER

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size)

LF : LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40 ˚C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350 ˚C .
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
  Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

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6. REPAIR PARTS LIST

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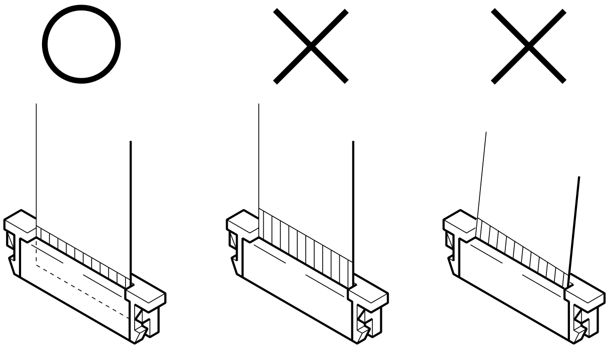
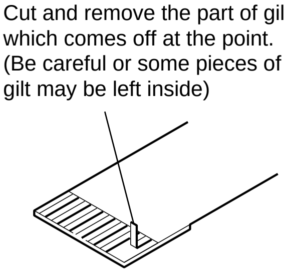
SERVICE NOTE

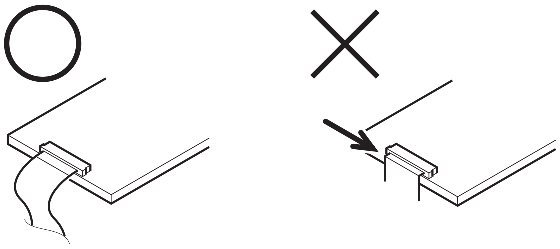
1. NOTE FOR REPAIR

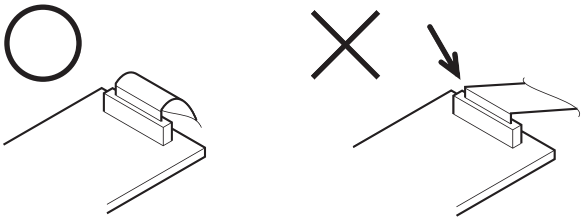
Make sure that the flat cable and flexible board are not cracked of bent at the terminal.
Do not insert the cable insufficiently nor crookedly.



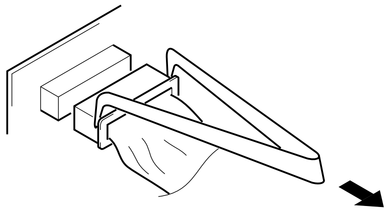

Cut and remove the part of gilt which comes off at the point.
(Be careful or some pieces of gilt may be left inside)

Do not fold down a flat cable at the edge of the inforcing board which is the reverse side of pins when the flat cable is connected to a connector.
If the flat cable is folded at that point, it may be a cause of breaking of foil inside of the cable.

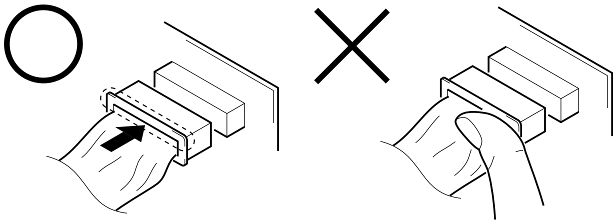




When remove a connector, don’t pull at wire of connector.
It is possible that a wire is snapped.



When installing a connector, don’t press down at wire of connector.
It is possible that a wire is snapped.



SELF-DIAGNOSIS FUNCTION

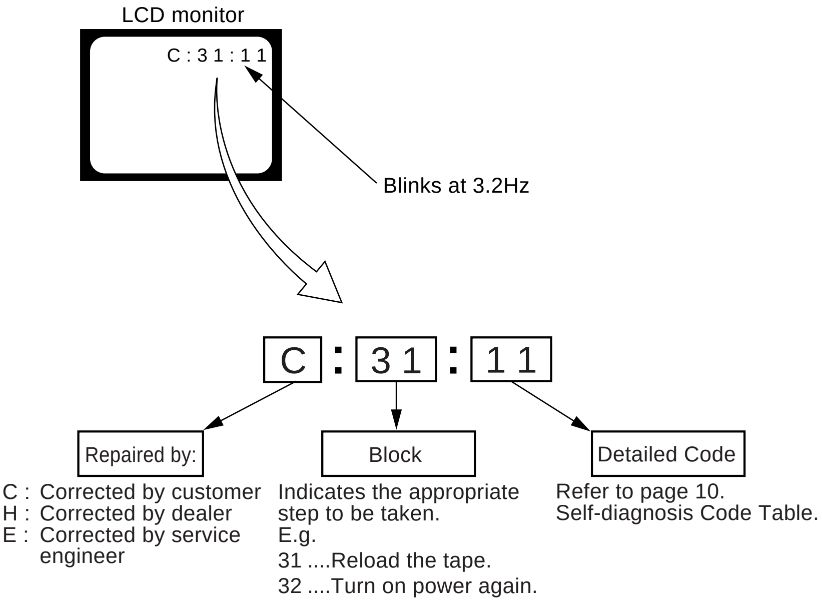
1. Self-diagnosis Function

When problems occur while the unit is operating, the self-diagnosis function starts working, and displays on the LCD monitor what to do. This function consists of two display; self-diagnosis display and service mode display.

Details of the self-diagnosis functions are provided in the Instruction manual.

2. Self-diagnosis Display

When problems occur while the unit is operating, the time code of the LCD monitor shows a 4-digit display consisting of an alphabet and numbers, which blinks at 3.2 Hz. This 5-character display indicates the “repaired by:”, “block” in which the problem occurred, and “detailed code” of the problem.



C : Corrected by customer
H : Corrected by dealer
E : Corrected by service engineer

Indicates the appropriate step to be taken.
E.g.
31 ....Reload the tape.
32 ....Turn on power again.

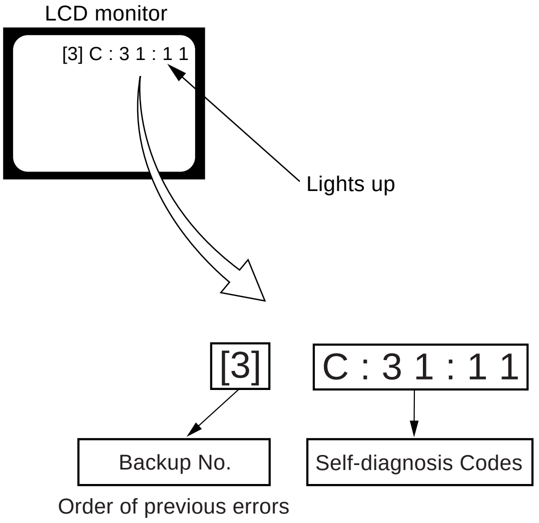
Refer to page 10.
Self-diagnosis Code Table.

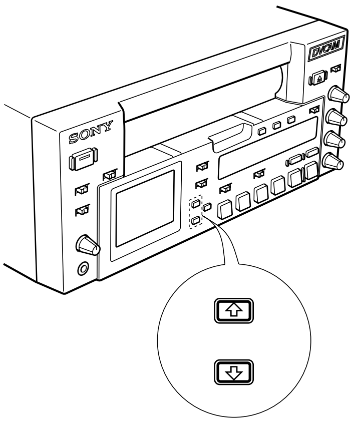
3. Service Mode Display

The service mode display shows up to six self-diagnosis codes shown in the past.

3-1. Display Method

Set the “DISPLAY SELECT” switch to “DATA”, turn on the power by the “POWER” switch while pressing the “STOP” key, and continue pressing the “STOP” key for 5 seconds continuously. The service mode will be displayed, and the time code will show the backup No. and the 5-character self-diagnosis codes.





3-2. Switching of Backup No.

By pressing the “⇧” or “⇩” key, past self-diagnosis codes will be shown in order. The backup No. in the [] indicates the order in which the problem occurred. (If the number of problems which occurred is less than 6, only the number of problems which occurred will be shown.)

[1] : Occurred first time	[4] : Occurred fourth time
[2] : Occurred second time	[5] : Occurred fifth time
[3] : Occurred third time	[6] : Occurred the last time

3-3. End of Display

Turning OFF the power supply will end the service mode display.

Note: The “self-diagnosis display” data will be backed up by the coin-type lithium battery (VD-032 board BT701). When this coin-type lithium battery is disconnected, the “self-diagnosis display” data will be lost by initialization.

4. Self-diagnosis Code Table

Self-diagnosis Code					Symptom/State	Correction
Repaired by:	Block Function		Detailed Code			
C	2	1	0	0	Condensation.	Remove the cassette, and insert it again after one hour.
C	2	2	0	0	Video head is dirty.	Clean with the optional cleaning cassette.
C	3	1	1	0	LOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3	1	1	1	UNLOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3	1	2	2	T reel fault.	Load the tape again, and perform operations from the beginning.
C	3	1	2	3	S reel fault.	Load the tape again, and perform operations from the beginning.
C	3	1	3	0	FG fault when starting capstan.	Load the tape again, and perform operations from the beginning.
C	3	1	4	0	FG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3	1	4	2	FG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3	2	1	0	LOAD direction loading motor time-out.	Disconnect the AC power cord. After reconnecting it, operate the unit.
C	3	2	1	1	UNLOAD direction loading motor time-out.	Disconnect the AC power cord. After reconnecting it, operate the unit.
C	3	2	2	2	T reel fault.	Disconnect the AC power cord. After reconnecting it, operate the unit.
C	3	2	2	3	S reel fault.	Disconnect the AC power cord. After reconnecting it, operate the unit.
C	3	2	3	0	FG fault when starting capstan.	Disconnect the AC power cord. After reconnecting it, operate the unit.
C	3	2	4	0	FG fault when starting drum.	Disconnect the AC power cord. After reconnecting it, operate the unit.
C	3	2	4	2	FG fault during normal drum operations.	Disconnect the AC power cord. After reconnecting it, operate the unit.

SECTION 1
GENERAL

This section is extracted from DSR-45/45P instruction manual.

Chapter 1
Overview

Features

The DSR-45/45P is a digital videocassette recorder using $^{1}/_{4}$-inch tape. Offering the DVCAM™ digital recording format, the DSR-45/45P produces stable, superior picture quality by digitally processing and separating image signals into color difference signals and a luminance signal (component video). Equipped with five kinds of remote control connector (RS-422A/RS-232C/LANC/CONTROL S/i.LINK), the DSR-45/45P allows you to configure various connection. The built-in color LCD monitor lets you check images easily.

The main features of the DSR-45/45P are described below.

DVCAM Format

DVCAM is based on the consumer DV format, which uses the 4:1:1 component digital format (DSR-45) or the 4:2:0 format (DSR-45P), and provides a $^{1}/_{4}$-inch digital recording format for professional use.

For details, see “Compatibility of DVCAM and DV Format” on page 101 (GB).

High picture quality, high stability

Video signals are separated into color difference signals and a luminance signal, which are encoded and compressed to one-fifth size before being recorded to ensure stable and superb picture quality.

Because the recording is digital, multi-generation digital dubbing can be performed with virtually no deterioration of quality.

Wide track pitch

The recording track pitch is about 15 µm, fully 50 percent wider than the DV format’s 10 µm track pitch. Thanks to this feature, the DVCAM format fully meets the reliability and precision requirements of professional editing.

High-quality PCM digital audio

PCM recording makes for a wide dynamic range and a high signal-to-noise ratio, thereby enhancing sound quality.

There are two recording modes: 2-channel mode (48 kHz sampling and 16 bit linear code), which offers sound quality equivalent to the DAT (Digital Audio Tape) format, or 4-channel mode (32 kHz sampling and 12 bit nonlinear code), which provides four channel simultaneous recording/playback.

DV format compatibility

The unit can perform recording and playback in the DV-format (SP mode only). (Recording/playing an image in LP mode is not available.)

Choice of two cassette sizes

The unit can use both standard-size and mini-size DVCAM/DV cassettes.

- According to cassette size, the position of the reel drive plates automatically changes.
- The maximum recording/playback times are 184 minutes for standard size cassettes and 40 minutes for mini-size cassettes (DVCAM format).

Remote control

The unit can be operated by remote control from the CONTROL S system Remote Control Unit (DSRM-20, not supplied), or an editing controller that has an RS-422A, RS-232C, or LANC jack.

High-speed search function

If you use an editing controller or the Remote Control Unit (DSRM-20, not supplied), the unit has a picture search function that allows you to view color pictures at playback speeds up to 14 times normal speed (DSR-45) or up to 17 times normal speed (DSR-45P) in both forward and reverse directions.

You can also search frame-by-frame in jog mode. While searching for scenes, you can also hear playback audio.

Internal time code generator/reader

The unit contains a time code generator/reader that can generate and read longitudinal time code (LTC) in the SMPTE format (DSR-45) or EBU format (DSR-45P). This unit can output the time code read from tape as an analog (LTC) signal, and receive externally generated time code (LTC).

Digital slow playback

The unit has a frame memory function that allows slow playback without noise. This is available only at $+^{1}/_{3}$-time speed and $-^{1}/_{3}$-time speed.

TBC (Time Base Corrector)

The unit has a digital TBC that provides jitter-free video output for analog signals. The video output level, chrominance signal output level, and setup level (DSR-45 only) can all be adjusted.

Jog audio function

If you use the Remote Control Unit (DSRM-20, not supplied) or an editing controller, audio can be monitored at various playback speeds when in jog mode.

Various interfaces

The unit provides many types of interface connectors.

- Analog video: component video, composite video, S-video (IN/OUT)
- Analog audio: XLR (3-pin) output connectors provide four channel simultaneous playback, phono jack type input connectors.
- i.LINK (DV) [1] : i.LINK-compliant DV jack (4-pin) allows input or output of digital video/audio signals in DVCAM/DV format.
- TC (Time code): BNC type input/output connectors allow input/output of the time code between this unit and an external device.

---

1) i.LINK and the i.LINK logo “i” are trademarks and indicate that this product is in agreement with IEEE 1394-1995 specifications and their revisions.

Other Features

Built-in color LCD monitor

The unit has a 2-type color LCD (liquid crystal display) monitor that lets you verify images on the spot. You can see the setup menus, audio levels, and system statuses. Menus and data can be superimposed over the picture being displayed.

Duplicate, including cassette memory data

Using an i.LINK cable, you can duplicate a tape that includes time code and cassette memory data, etc. If the original tape has blank portions, you can duplicate the tape skipping those portions.

Audio dubbing function

The unit allows you to record just the sound onto the recorded tape (audio dubbing). (The tape must be recorded in DVCAM format and the audio mode must be 32 kHz.)

Menu system for functionality and operation settings

The unit provides a menu system to make its various functions easier to use and set up.

Superimposition function

Time code, warnings, menus, and other text data can be superimposed on the MONITOR VIDEO output and the LCD monitor.

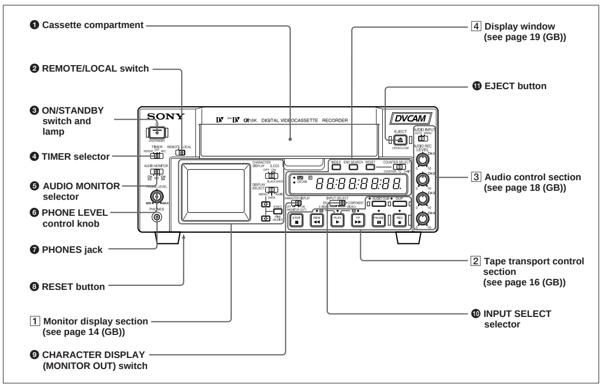
Easy maintenance functions

- **Self-diagnostics/alarm functions:** The system automatically detects an invalid operation, an invalid connection or a malfunction, and displays a description, a cause and a recovery method on the LCD monitor and outputs the data from the MONITOR VIDEO connector.
- **Digital hours meter:** A digital hours meter counts four types of time data—operating time, drum rotation time, tape running time, and tape threading/unthreading. The digital hours data are indicated on the menu.

DVCAM, DV, Mini DV and ClipLink are trademarks of Sony Corporation.

Location and Function of Parts

Front Panel


❶ Cassette compartment
❷ REMOTE/LOCAL switch
❸ ON/STANDBY switch and lamp
❹ TIMER selector
❺ AUDIO MONITOR selector
❻ PHONE LEVEL control knob
❼ PHONES jack
❽ RESET button
1 Monitor display section (see page 14 (GB))
❾ CHARACTER DISPLAY (MONITOR OUT) switch
4 Display window (see page 19 (GB))
⓫ EJECT button
3 Audio control section (see page 18 (GB))
2 Tape transport control section (see page 16 (GB))
❿ INPUT SELECT selector
SONY
DIGITAL VIDEOCASSETTE RECORDER
DVCAM

❶ Cassette compartment

Insert a standard-size or mini-size DVCAM cassette. To open or close the compartment, press the EJECT button ⓫.

For details of cassettes that can be used, see “Notes on Video Cassettes” on page 30 (GB).

❷ REMOTE/LOCAL switch

Set this switch to REMOTE when controlling the unit from an external device connected to the RS-422A/RS-232C connector on the rear panel.

REMOTE: Enables an external device connected to the RS-422A/RS-232C connector.
When setting this switch to REMOTE, you can restrict the tape transport and menu control buttons on the front panel, the Remote Commander, and the optional Remote Control Unit connected to the CONTROL S IN jack using LOCAL ENBL on the REMOTE menu.
For details on the REMOTE menu, see “REMOTE menu” on page 80 (GB).

LOCAL: Disables an external device connected to the RS-422A/RS-232C connector.

The switch setting enables/disables external devices as follows.

	REMOTE	LOCAL
RS-422A[a]	Enabled	Disabled
RS-232C[a]	Enabled	Disabled
LANC[a]	Enabled	Enabled
CONTROL S IN[b]	Depending on the setting of LOCAL ENBL on the REMOTE menu	Enabled
Remote Commander[b]	Depending on the setting of LOCAL ENBL on the REMOTE menu	Enabled
DV (i.LINK)	Enabled	Enabled

a) You also need to set the remote selector on the rear panel according to the connector to which you connect a device.

b) Depending on the setting of COMMANDER on the OTHERS menu.

Notes

- An external device connected to the LANC jack can operate the unit regardless the setting of this switch as long as the remote selector is set to LANC.

- In addition to the Remote Commander supplied with the unit, the unit accepts signals from any Sony Remote Commander whose command mode is set to VTR4. When this switch is set to REMOTE, the Remote Commander functions depending on the setting of LOCAL ENBL on the REMOTE menu. If you want to disable the control from any Remote Commander, set COMMANDER on the OTHERS menu to CONTROL S.
- The TIMER selector ❹ setting has a higher priority than this switch setting.
- When this switch is set to REMOTE, the ON/STANDBY switch ❸ does not work. To enable the ON/STANDBY switch, set this switch to LOCAL or set LOCAL ENBL on the REMOTE menu to ALL KEYS.

❸ ON/STANDBY switch and lamp
Press this switch to turn the unit on. The ON/STANDBY lamp lights up in green. When you press this switch again, the unit goes into the standby mode and the lamp lights up in red.

Note

When the REMOTE/LOCAL switch is set to REMOTE, this switch does not work. To enable this switch, set the REMOTE/LOCAL switch to LOCAL or set LOCAL ENBL on the REMOTE menu to ALL KEYS.

❹ TIMER selector
Use to select Auto Repeat or recording using an external AC timer (not supplied).

REPEAT: Whenever the power is connected to this unit, a tape rewinds to its beginning automatically and playback starts. The unit repeats the playback from the beginning to the first index (if there is no index on the tape, to an unrecorded portion; if there is no unrecorded portion, to the tape end). Auto Repeat also functions if you set this selector to REPEAT during playback or rewinding.
For details on Auto Repeat, see “Automatically playing back a tape repeatedly (Auto Repeat)” on page 39 (GB).

OFF: Auto Repeat or timer recording is released.

REC: Recording begins the moment the power is connected to the unit.

Note

This selector setting has a higher priority than the REMOTE/LOCAL switch ❷ setting.

❺ AUDIO MONITOR selector
Use to select the audio track you want to listen to through the PHONES jack ❼ or MONITOR AUDIO jack.

CH-1/2: channels 1/2 only
MIX: channels 1/2 and channels 3/4
CH-3/4: channels 3/4 only

❻ PHONE LEVEL control knob
Controls the volume of the headphones connected to the PHONES jack ❼.

❼ PHONES jack
Connect stereo headphones for monitoring sounds during recording or playback. The audio signal you want to monitor can be selected with the AUDIO MONITOR selector ❺.

❽ RESET button
Press this button to initialize the time set on the internal clock and the time code of the FREE RUN setting. Use the tip of a ball-point pen or similar tool to press this button. (The menu item settings are maintained.)

❾ CHARACTER DISPLAY (MONITOR OUT) (data items superimposed on an external monitor) switch
Set this switch to ON to superimpose data items on the MONITOR VIDEO output. Even if you set it to OFF, the tape label, title and data codes (camera data and date/time recorded by a camera) are superimposed.

Note

To choose whether or not the tape label, title, or data codes are displayed, use the menu items. Also, you can select the data code items to be displayed by pressing the DATA CODE button on the Remote Commander.

❿ INPUT SELECT selector
You can select DV, S VIDEO, VIDEO, or COMPONENT to input signals.
The type of signal selected is displayed on the Data screen on the LCD monitor on the front panel.

Notes

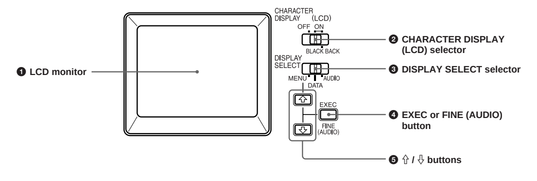
- When you input signals to the DV jack, the following settings are disabled:
  - Setting of the audio input level control selector (–10/–2/+4)
  - Audio recording level

(Continued)

  - Audio recording level adjustment mode (AUTO/MANU)
  - Audio mode (32 kHz/48 kHz)
  - Audio limiter
  - Color bars (Cannot be displayed)
- If you change this selector, the screen may momentarily become bright or noise may appear. This noise will be recorded.
- Do not change this selector setting during recording. Otherwise, the recorded image will be distorted or the signal output from the DV jack will be interrupted. Also, the unit may mistakenly recognize that a copyright protected signal has been input.

⓫ EJECT (OPEN/CLOSE) (open/close the cassette compartment) button
Press this button to open or close the cassette compartment. If you press this button while a cassette is inside the unit, the compartment opens and the cassette is ejected.
After removing the cassette, press this button again to close the compartment.

1 Monitor display section



❶ LCD (Liquid Crystal Display) monitor
Displays the playback or EE1) pictures. Also, superimposed time data, status information, menu, audio levels meters, etc. are displayed.

Notes

- The data items superimposed on the LCD monitor are the same as items superimposed on a monitor connected to the MONITOR VIDEO jack.
  You cannot make two monitors display different data items individually.
- The backlight used in the built-in LCD monitor deteriorates with prolonged use. If the brightness of the LCD monitor cannot be adjusted, consult your Sony dealer.

For details on the maintenance of the LCD monitor, see page 99 (GB).

❷ CHARACTER DISPLAY (LCD) (data items superimposed on the LCD monitor) selector
Use to superimpose data items on the LCD monitor.

OFF: No data items are superimposed except the tape label, title, data codes (camera data, and date/time recorded by a camera).

ON: Data items are superimposed.

ON (BLACK BACK): Data items are displayed on a black background.

---

1) “EE” stands for “Electric to Electric.” In EE mode, the video and audio signals that are input to the VCR’s recording circuitry do not pass through any magnetic conversion circuits but instead are output via electric circuits only. This mode is used to check the input signals and adjust input levels. The pictures output in EE mode are referred to as EE pictures.

Notes

- To choose whether or not the tape label, title, or data codes are displayed, use the menu items. Also, you can select the data code items to be displayed by pressing the DATA CODE button on the Remote Commander.
- To adjust the menu items, set the LCD monitor or a monitor connected to the MONITOR VIDEO jack to display the menu. When neither of the monitors is set, you cannot adjust the menu items.

❸ DISPLAY SELECT selector
Selects the data items displayed on the LCD monitor or a monitor connected to the MONITOR VIDEO jack.

MENU: displays the menu.

DATA: displays time code, remaining tape time, type of input signal selected, audio mode, presence or absence of cassette memory, tape label, title, etc.

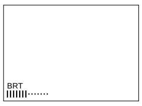
AUDIO: displays audio levels.

Notes

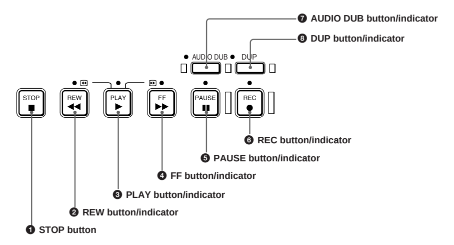
- You can use the Remote Control Unit (DSRM-20, not supplied) or the supplied Remote Commander to search for a scene using search signals on the tape. In this case, you can search for the scene regardless of this selector setting.
  To display the “–/+” which indicates the direction to search, set this selector to DATA.
- If you change the selector setting during a search with the cassette memory, the search aborts.

❹ EXEC (execute) or FINE (AUDIO) (fine audio levels) button
When the DISPLAY SELECT selector ❸ is set to MENU, the button functions as the EXEC (execute) button. Press this button to change the setting on the menu items.
For details on the menu, see “Operating the Menus” on page 76 (GB).
When the DISPLAY SELECT selector ❸ is set to AUDIO, the button functions as the FINE (fine audio levels) button. While you are holding this button down, the enlarged audio levels meters are displayed. You can confirm or adjust audio levels precisely on these enlarged audio levels meters. To select an enlarged portion, use REF LEVEL on the AUDIO SET menu.
For details on fine audio levels screen, see “Fine audio levels screen” on page 29 (GB).
For details on the AUDIO SET menu, see “AUDIO SET menu” on page 88 (GB).

❺ ⇧ / ⇩ buttons
When the DISPLAY SELECT selector ❸ is set to MENU, you can select a menu item by pressing these buttons.
For details on the menu, see “Operating the Menus” on page 76 (GB).
When the DISPLAY SELECT selector ❸ is set to DATA, you can adjust the brightness of the LCD monitor by pressing these buttons. During the adjustment, the brightness level is displayed as illustrated below. It disappears one second after you have adjusted the brightness.



2 Tape transport control section



❶ STOP button
Press this button to stop the current tape transport operation.

❷ REW (rewind) button/indicator
When you press this button, the indicator lights and the tape starts rewinding. During rewind, the picture does not appear on the monitor (you can see the picture as it is seen in the EE mode).
To locate a scene while monitoring the picture, hold this button down during rewind, playback or in the playback pause mode.
If you press the PLAY button while holding this button down during stop, the tape is rewound to its beginning and starts playback automatically (during rewind, the REW indicator lights and the PLAY indicator flashes).
You can change the tape transport mode in FF/REW SPD on the VTR SET menu.
For details on the VTR SET menu, see “VTR SET menu” on page 90 (GB).

Notes

- If you set EE/PB SEL on the DISPLAY SET menu to PB, the EE pictures or EE sounds are not output while the tape rewinds.
- If you set FF/REW SPD on the VTR SET menu to SHUTTLEMAX, you can display the picture while the tape rewinds.
  For details on the tape transport speed of the SHUTTLEMAX setting, see “FF/REW SPD” in the “VTR SET menu” on page 90 (GB).

❸ PLAY button/indicator
When you press this button, the indicator lights and playback begins.

Notes

- If the unit is playing a part of the tape where the format has been changed between the DVCAM format and the DV format or where the color system of the recorded signals has been changed between PAL and NTSC, the picture and sound are distorted.
- The unit can play back only tapes recorded in the DVCAM format or in the SP mode of the DV format.

❹ FF (fast forward) button/indicator
When you press this button, the indicator lights and the tape is fast forwarded. During fast forward, the picture does not appear on the monitor (you can see the picture as it is seen in the EE mode).
To locate a scene while monitoring the picture, hold this button down during fast forward, playback or in the playback pause mode.
You can change the tape transport mode in FF/REW SPD on the VTR SET menu.
For details on the VTR SET menu, see “VTR SET menu” on page 90 (GB).

Notes

- If you set EE/PB SEL on the DISPLAY SET menu to PB, the EE pictures or EE sounds are not output while the tape is fast-forwarded.

- If you set FF/REW SPD on the VTR SET menu to SHUTTLEMAX, you can display the picture while fast-forwarding the tape.
  For details on the tape transport speed of the SHUTTLEMAX setting, see “FF/REW SPD” in the “VTR SET menu” on page 90 (GB).

❺ PAUSE button/indicator
When you press this button during recording, playing, or audio dubbing, the current operation goes into the pause mode. Pressing this button again resumes the operation. The indicator lights while the unit is in the pause mode.

❻ REC (record) button/indicator
When you press the PLAY button while holding this button down, the PLAY and REC indicators light and recording starts.
When the unit is in the stop mode, you can check EE signals for an image, sound and time code by pressing this button. During this check, the REC indicator lights. To stop this operation, press the STOP button.
For details, see “EE/PB SEL” in the “DISPLAY SET menu” on page 85 (GB). For details on time codes, see “DSR-45/45P time codes” on page 63 (GB).

Note

The unit can record only in the DVCAM format or in the SP mode of the DV format.

❼ AUDIO DUB (audio dubbing) button/indicator
Use this button to dub sounds. The indicator lights while sounds are being dubbed.
For details on audio dubbing, see “Audio Dubbing” on page 74 (GB).
When the unit is in the stop mode and the INPUT SELECT selector is set to other than DV, you can listen to the EE sound by pressing this button. During this operation, the indicator lights. To stop the operation, press the STOP button.
For details, see “EE/PB SEL” in the “DISPLAY SET menu” on page 85 (GB).

❽ DUP (duplicate) button/indicator
Use to duplicate a tape, including the time code. During duplication, the indicator lights.
For details on the duplicate function, see “Duplication (generating a work tape with the same time code)” on page 69 (GB).
When the unit is in the stop mode and a DV signal is selected and input, you can check the EE signals for an image, sound and time code by pressing this button. During the check, the indicator lights. To stop this operation, press the STOP button.
For details, see “EE/PB SEL” in the “DISPLAY SET menu” on page 85 (GB). For details on time codes, see “DSR-45/45P time codes” on page 63 (GB).

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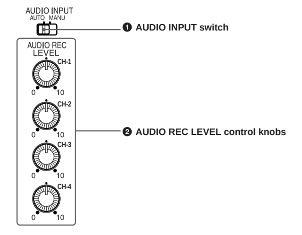
3 Audio control section



❶ AUDIO INPUT (AUTO/MANU) switch
Switches the audio recording level adjustment mode.

AUTO: Adjusts the recording level automatically.
The AUDIO REC LEVEL control knobs (CH-1 to CH-4) ❷ are disabled.
To link the AGC (Auto Gain Control) of the audio channels (CH-1/2 or CH-3/4), set AGC CH1,2 (AGC CH3,4) on the AUDIO SET menu to LINKED.

MANU: Enables the AUDIO REC LEVEL control knobs (CH-1 to CH-4) ❷ to manually adjust the recording level.

Notes

- When DV signals are input to the unit, the sound recorded retains the signal level input, regardless of the setting of this switch.
- If the sound is louder than the input amplifier’s dynamic range, the AUTO setting is ineffective.
- Even if you set this switch to AUTO, unless the setting of the INPUT LEVEL selector on the rear panel is appropriate, there may be clipping and noise.
- The audio level is automatically adjusted to an appropriate level when you select AUTO. It takes about 20 seconds for the audio level to be stabilized in the following cases.
  - – immediately after powering on
  - – immediately after stopping a playback operation
  - – immediately after switching the audio mode in AUDIO MODE on the AUDIO SET menu
- If LIMITER on the AUDIO SET menu has been set to ON while you are manually adjusting the audio level, you can record the sound without clipping even if the audio input level is high as long as the level is within the amplifier’s dynamic range. The LIMITER setting is available only when this switch is set to MANU.

❷ AUDIO REC LEVEL control knobs (CH-1 to CH-4)
By turning these knobs, you can adjust the analog audio input signal levels for CH-1 to CH-4 respectively. You can adjust the audio signal level only if the AUDIO INPUT (AUTO/MANU) switch ❶ has been set to MANU.
To display the audio levels meters on the LCD monitor, set the DISPLAY SELECT selector on the monitor display section to AUDIO (audio screen). While you are holding down the FINE (fine audio levels) button when the audio levels meters are displayed, a part of the audio levels meters will be enlarged (Fine audio levels screen). To select the enlarged portion, use REF LEVEL on the AUDIO SET menu. You can adjust the audio levels precisely on this screen.
For details on the audio screen, see “Audio screen” on page 28 (GB).

Note

You cannot adjust the audio level of the DV signal.

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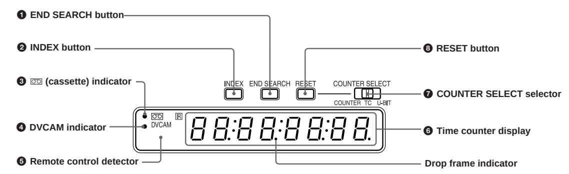
4 Display window



❶ END SEARCH button
When you press this button, the unit searches the tape and plays back the last five-second recorded picture. After playback, the unit turns to the stop mode. Use this function to record another image at the end of the last recorded portion or to check the image itself.

Note

If you use a cassette without cassette memory, the end search function does not work once you eject the cassette after you have recorded on the tape. If you use a cassette with cassette memory, the end search function works even if you have ejected the cassette one or more times. If there is a blank portion at the beginning or between recorded portions, the end search function may not work correctly.

❷ INDEX button
Press this button during recording to mark an index. If you mark an index at the scene you want to search for, you can easily find the scene later.
For details on index, see “Recording Functions” on page 44 (GB).

❸ 📼 (cassette) indicator
Lights when a digital video cassette is loaded. Even if the unit is in the standby mode, the indicator lights as long as a cassette is inside of the unit. While a cassette is being ejected, the indicator flashes.

❹ DVCAM indicator
Lights when the unit is playing back a tape recorded in the DVCAM format. When REC MODE on the VTR SET menu is set to DVCAM, this indicator also lights during recording or when the unit is in the EE mode.
For details on the VTR SET menu, see “VTR SET menu” on page 90 (GB).

❺ Remote control detector

❻ Time counter display
Displays time data (count value of the counter / time code / user bits), the self-diagnostics code numbers (page 100 (GB)), or the alarm messages (“Err” (page 97 (GB)).
When the count value of the counter is negative, “–” appears as the first digit (leftmost digit). When that value is positive, the first digit is blank.
When the format of the displayed time code is drop frame mode, the drop frame indicator, located between minutes and seconds, lights.
The user bits are displayed with periods (.) after each digit.

Notes

- In the playback mode, if the tape has a portion where recorded signals are not continuous;
  - – The count value of the counter may not advance correctly from that portion.
  - – The displayed value of the time code or user bits may be temporarily inaccurate.
- When this unit plays back a part of the tape where the recorded color system has been changed between PAL and NTSC, the displayed value may be inaccurate.
- When this unit plays back a part of the tape where the recording format has been changed between DVCAM and DV, the displayed value may be inaccurate.
- The counter operates on a ±12-hour cycle. You cannot make the counter operate on a 24-hour cycle.
- The count value of the counter consists of seven digits. The leftmost digit is not displayed. (i.e.; If the actual count value is “11:22:11:22,” the displayed value will be “1:22:11:22.”) However, the unit recognizes that the hours value is 11.

(Continued)

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❼ COUNTER SELECT selector
Selects the time data to be indicated on the time counter display. Selected time data is also displayed on the LCD monitor or on the counter display of a monitor connected to the MONITOR VIDEO jack.

COUNTER: Count value of the counter (seven digits). The value is displayed on a ±12-hour cycle.

TC: Time code

U-BIT: User bits

Notes

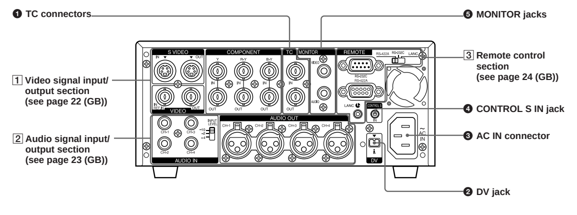
- The count value of the counter of this unit is determined by calculation based on the time code, that is, simple approximation. Therefore, in cases such as the following, the value may be inaccurate.
  - – There is a portion where the time code is not continuous on the tape you are using.
  - – The time code in both the drop frame mode and the non-drop frame mode are recorded on the tape you are using (For DSR-45 only).
  - – There is a blank portion between recorded portions on the tape you are using.
  - – A tape recorded using the PAL color system is being used in the DSR-45.
  - – A tape recorded using the NTSC color system is being used in the DSR-45P.
  - – You are using an external time code.
  - – TC RUN on the TC/UB SET menu is set to FREE RUN.
- If you intend to edit using an RS-422A connection, set the editing mode of the controller to time code (TC), and set the COUNTER SELECT selector of this unit to TC.

❽ RESET (counter reset) button
When the COUNTER SELECT selector ❼ is set to COUNTER, pressing this button resets the value indicated on the time counter display to 0:00:00:00 (0H00M00S00F).

Notes

- This button cannot reset the value of the time code or user bits.
- To reset the value of the time code or user bits, use TC PRESET or UB PRESET on the TC/UB SET menu.

Rear Panel


❶ TC connectors
❺ MONITOR jacks
3 Remote control section (see page 24 (GB))
1 Video signal input/ output section (see page 22 (GB))
❹ CONTROL S IN jack
2 Audio signal input/ output section (see page 23 (GB))
❸ AC IN connector
❷ DV jack
S VIDEO
COMPONENT
TC
MONITOR
REMOTE
VIDEO
AUDIO IN
AUDIO OUT
DV
AC IN

❶ TC (time code) connectors (BNC-type)

Used to input or output time code.

TC IN (time code input) connector: Connects to the time code output connector on external devices such as a time code generator or a VCR. Use this connector to synchronize the internal time code generator of this unit with an external time code.

Note

The unit can read the time code input to this connector only when the time code is output at normal play speed.

TC OUT (time code output) connector: Connects to the time code input connector on external devices such as a time code reader or a VCR. The unit outputs the time code depending on the operating state as follows:

Playing: The time code on the tape is output.

Recording: Either the time code generated by the internal time code generator or the time code input from a device connected to the TC IN connector is output.

For details, see “DSR-45/45P time codes” on page 63 (GB).

Note

If JOG TC OUT on the TC/UB SET menu has been set to ON, the time code is output during search mode, but the output time code is not continuous.

❷ DV jack (4-pin)

Used to input/output the digital signal that complies with the i.LINK standard (Recommended cable: VMC-IL4415 (A), VMC-IL4615 (A)). Use when a device connected to the unit has a DV jack. If you connect the unit and another device using DV jacks, you can minimize deterioration of picture quality during recording, dubbing, or capturing still pictures, all by means of digital signal processing. For details, refer to the instruction manual of the external device.

Notes

- If video signals have been input to the DV jack and you output these video signals to the MONITOR VIDEO, VIDEO OUT, or S VIDEO OUT connectors, the sync and burst of the corresponding EE pictures are not synchronized.
- i.LINK and the i.LINK logo “i” are trademarks and indicate that this product is in agreement with IEEE 1394-1995 specifications and their revisions.
- This jack can accept only DV signals.
- If the unit is connected to a device equipped with a 6-pin DV jack, when you intend to disconnect or reconnect the DV cable, turn off the device and pull out the plug of its power cord from the AC outlet beforehand. If you connect or disconnect the DV cable while the device is connected to the AC outlet, high-voltage current (8 to 40 V) is output from the DV jack of the device to this unit, which may cause a malfunction.
- When connecting a device that has a 6-pin DV jack to this unit, first, connect the plug of the cable to the 6-pin DV jack.

❸ AC IN connector

Connects to an AC outlet using the supplied power cord.

Even if the unit is in the standby mode, it consumes power. To turn the unit off completely, pull the plug out from the AC outlet.

❹ CONTROL S IN jack (stereo minijack)

Connects to the Remote Control Unit (DSRM-20, not supplied) for controlling this unit.

Notes

- When using the Remote Control Unit (DSRM-20, not supplied), set COMMANDER on the OTHERS menu to CONTROL S.
- If the REMOTE/LOCAL switch is set to REMOTE, the control of a device connected to the CONTROL S jack is restricted by the setting of LOCAL ENBL on the REMOTE menu.

❺ MONITOR jacks (phono jack)

Output video and audio signals for monitoring.

MONITOR VIDEO jack: Outputs composite video signals. Connect the input jack of an external monitor to this jack. When you set the CHARACTER DISPLAY (MONITOR OUT) switch on the front panel to ON, data items such as time data, menus or alarm messages are superimposed on the external monitor.

For details on the superimposed data items, see “Displaying Various Data” on page 27 (GB).

Notes

- When video sync signals of the EE pictures output from the MONITOR VIDEO jack, sync and burst are not synchronized.
- The video signal output from this connector is not synchronized with the video signal output from the line-out connectors (COMPONENT OUT, S VIDEO OUT, VIDEO OUT). When the unit is in the EE mode, the output pictures are delayed by several lines. When played back, the picture is not exactly externally synchronized — only vertically synchronized. You cannot adjust the sync and subcarrier phases.

(Continued)

- If DV input has been selected, color and luminance may be distorted in the EE mode, depending on the monitor.
- The data items superimposed on a monitor connected to this jack are the same as the items superimposed on the LCD monitor.
  You cannot make two monitors display different data items individually.
- The adjustment of PB LEVEL on the VIDEO SET menu does not affect the MONITOR VIDEO output.
- While the unit is externally synchronized, the sync signal frequency and the burst signals of the video signals output to the LCD monitor and the MONITOR VIDEO jack are not synchronized. Therefore, jitter may appear on those output signals.

If the unit is externally synchronized, use the VIDEO OUT connector. If you use the MONITOR VIDEO jack, set EXT SYNC on the VIDEO SET menu to OFF.

MONITOR AUDIO jack: Outputs the audio signals for monitoring. Select the audio channels you want to monitor as follows.

CH-1/2: channels 1/2

MIX: channels 1 to 4

CH-3/4: channels 3/4

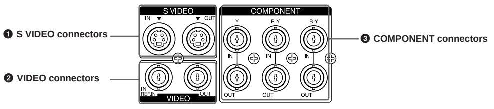
1 Video signal input/output section

Note

The unit can only accept standard video signals.

If you input the types of video signals shown below, recorded picture, sound, and the EE picture output via the VIDEO OUT, S VIDEO OUT and COMPONENT OUT connectors may be distorted.

- Signals from some home game machines
- Blue background screen or gray background screen from a consumer VCR
- Pictures played at a speed other than normal by a VCR that does not have the TBC (Time Base Corrector)
- Video signals in which the sync signals are distorted
- Signals from a defective cassette (tape or recording condition is bad) played by an analog VCR that does not have TBC



❶ S VIDEO connectors (4-pin)

Inputs/Outputs the S-video signal with Y (luminance) and the C (chroma: 3.58 MHz for DSR-45 and 4.43 MHz for DSR-45P) separated.

❷ VIDEO connectors (BNC-type)

VIDEO IN REF.IN (reference video / composite video input) connector:

Inputs composite video signals to this unit. When performing a playback synchronized with an external sync signal, this connector inputs a reference video (black burst) signal.

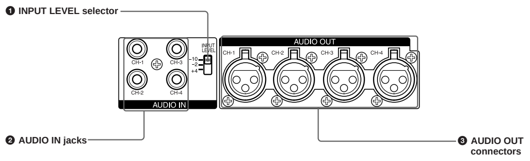
VIDEO OUT (composite video output) connector:

Outputs composite video signals. The data items are not superimposed.

❸ COMPONENT connectors (BNC-type)

Inputs/Outputs component video signals (Y/R-Y/B-Y).

2 Audio signal input/output section



❶ INPUT LEVEL (–10/–2/+4) selector

Selects one from among –10 dB, –2 dB, or +4 dB according to the audio level of the signal input via the AUDIO IN jacks ❷.

Note

If this selector setting is not appropriate, clipping distortion or noise may occur even if the AUDIO INPUT switch has been set to AUTO.

For more information on the setting of this selector, see “When you set the INPUT LEVEL selector” on page 96 (GB).

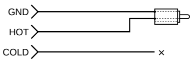
❷ AUDIO IN CH-1 to CH-4 jacks (phono jack)

Inputs audio signals (CH-1 to CH-4).

Note

To input balanced audio signals via these jacks, use a conversion cable as shown below. (The COLD side is open.)

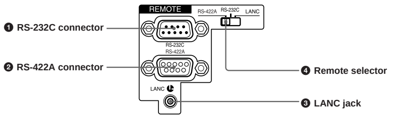
For details on conversion cables, refer to the instruction manual of the devices you use.



❸ AUDIO OUT CH-1 to CH-4 connectors (XLR 3-pin, male)

Outputs audio signals (CH-1 to CH-4).

3 Remote control section



Notes

- When controlling the unit using a device connected to the RS-232C connector ❶ or the RS-422A connector ❷, set the REMOTE/LOCAL switch on the front panel to REMOTE. (Regardless of the setting of the REMOTE/LOCAL switch, you can use a device connected to the LANC jack ❸ to control the unit.)
- Even when the DSR-45 plays back a PAL formatted tape (or the DSR-45P plays back an NTSC formatted tape), you can control the basic tape transport functions using a device connected to the RS-232C connector ❶ or the RS-422A connector ❷. However, editing operations attempted in this case are not guaranteed.
- For editing, if you intend to use this unit as a recorder and to use the FXE-120/120P or the FXE-100/100P upgraded by installing the FXE-KIT1 as an editing controller, you also need to use the IF-FXE2 LANC Interface Box.

❶ RS-232C connector (9-pin)

Use when controlling the unit using an editing controller or a computer that has an RS-232C interface.

Note

For editing, if you intend to use this unit as a player and the FXE-120/120P or FXE-100/100P as an editing controller, set the baud rate of both devices to 19200 bps.

❷ RS-422A connector (9-pin)

Use when controlling the unit using an editing controller that has an RS-422A interface.

❸ LANC jack

Use when controlling the tape transport operation of the unit using a device that has a LANC[1] jack.

Notes

- Regardless of the setting of the REMOTE/LOCAL switch, you can use a device connected to the LANC jack to control the unit.
- The LANC jack on the unit has only LANC-S functions. The unit has no LANC-M functions. A device that is set to LANC-S mode cannot be connected to this unit. Either this, the unit or the other device may not operate properly.
- If the device that you connect to this unit has a SHUTTLE A/B switching function and a LANC-M function, set the device to the SHUTTLE B mode.
- The LANC connection transmits signals such as control signals, time code, time counter data, and status data.
- Jacks labeled CONTROL L have the same function as LANC jacks.
- When using this unit as a player, set the LANC mode on the recorder to M. A device that does not have an M / S switching function cannot be used to control this unit.

❹ Remote selector

Selects one from among RS-422A, RS-232C, or LANC according to a device connected to the unit.

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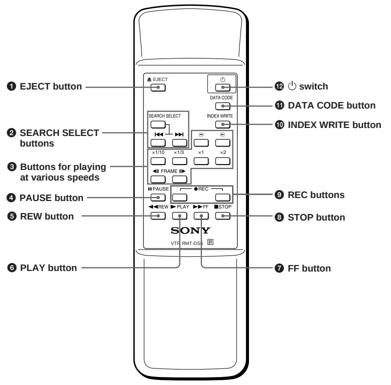
[1] LANC (Local Application Control bus system): Bidirectional interface used to control a consumer VCR

Supplied Remote Commander



❶ EJECT button

Note

When there is no cassette inside the unit, you cannot open/close the cassette compartment, even if you press this button.
In this case, press the EJECT button on the front panel of the unit instead.

❷ SEARCH SELECT buttons

Press these buttons to search for scenes using the search function.
For details on the search function, see "Searching using the search function" on page 37 (GB).

❸ Buttons for playing at various speeds

You can play back a tape at normal speed or at a speed other than normal with these buttons.
For details, see "Playing at various speeds" on page 37 (GB).

❹ PAUSE button

❺ REW (rewind) button

❻ PLAY button

❼ FF (fast forward) button

❽ STOP button

❾ REC (record) buttons

When you press both these buttons at the same time, the REC indicator and PLAY indicator on the front panel light and recording begins.

(Continued)

❿ INDEX WRITE button

Press this button during recording to mark an index.
For details on an index, see "Marking an index" on page 44 (GB).

⓫ DATA CODE button

Press this button to display the data codes (recording date/time, camera data).
For details on data codes, see "Displaying information (data codes) recorded on a tape" on page 36 (GB).

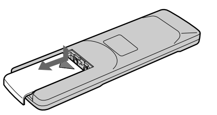
⓬ ⏻ (on/standby) switch

Notes

- The command mode of the supplied Remote commander is set to VTR4. You cannot change this setting.
- Set COMMANDER on the OTHERS menu to WIRELESS to enable the Remote Commander to control the unit.
- In addition to the Remote Commander supplied with the unit, the unit accepts signals from any Sony Remote Commander whose command mode is set to VTR4. If you want to disable the control from any Remote Commander, set COMMANDER on the OTHERS menu to CONTROL S.
- If the REMOTE/LOCAL switch is set to REMOTE, the control of the Remote Commander is restricted by the setting of LOCAL ENBL on the REMOTE menu.

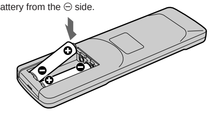
Battery installation

1 Push and slide the lid to open.

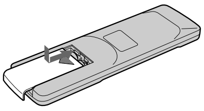


2 Install two size AA (R6) batteries (supplied) with the correct polarity.

Be sure to install the battery from the ⊖ side.



3 Replace the lid.



Notes on batteries

- Make sure that the battery orientation is correct when inserting batteries.
- Do not mix an old battery with a new one, or mix different types of batteries.
- If you do not intend to use the Remote Commander for a long time, remove the batteries to avoid damage from battery leakage. If the batteries have leaked, remove them, wipe the battery compartment dry and replace the batteries with new ones.

To remove the batteries

Remove the lid as step **1** and take out the batteries.

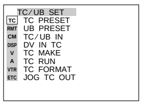
Displaying Various Data

The unit can display various superimposed data items on the built-in LCD monitor or on a monitor connected to the MONITOR VIDEO jack.
To display various data items on the LCD monitor, set the CHARACTER DISPLAY (LCD) selector to ON or ON (BLACK BACK).
To display various data items on an external monitor, set the CHARACTER DISPLAY (MONITOR OUT) switch to ON.

You can select data items to be displayed using the DISPLAY SELECT selector.

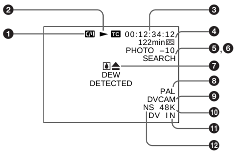
Menu screen

To display the menu screen, set the DISPLAY SELECT selector to MENU. You can change or confirm the menu item settings on this screen.
For details on the menu, see "Chapter 6 Adjusting and Setting Through Menus" on page 76 (GB).



Data screen

To display the data screen, set the DISPLAY SELECT selector to DATA. You can confirm important information for recording or playback, such as time code or remaining tape time, on this screen.



❶ Cassette memory indicator

This item is shown when a cassette with cassette memory has been loaded. If the cassette is ejected while data is being written on the cassette memory, the indicator flashes.

❷ Tape transport mode indicator

Displays the tape transport mode.

❸ Time counter (time code/user bits/count value of the counter) indicator

Displays the count value of the counter, time code, or user bits. By setting the COUNTER SELECT selector on the front panel, you can select the item to be displayed.
When the time code is displayed, TC appears to its left. In the drop frame mode, a period is displayed between the minutes and seconds. (Example: 00:12.58:00)
When the user bits are displayed, UB appears to their left.
When the count value of the counter is negative, "–" appears as the first digit (leftmost digit). When that value is positive, the first digit is blank.
The count value of the counter consists of seven digits.
If the self-diagnostic function is enabled, diagnostics code numbers are displayed.

Notes

- The counter operates on a ±12-hour cycle. You cannot make the counter operate on a 24-hour cycle.
- The count value of the counter consists of seven digits. The leftmost digit is not displayed. (i.e.; If the actual count value is "11:22:11:22," the displayed value will be "1:22:11:22.") However, the unit recognizes that the hours value is 11.

❹ Remaining tape time indicator

Displays the remaining tape time.

Note

When you insert a cassette in which the tape has been rewound to the beginning, this indicator will not show the remaining tape time. The remaining tape time is displayed after the tape runs for a while.

❺ Search indicator

Displays the search mode when you search for scenes using the Remote Commander or the DSRM-20 (not supplied).
For details on the search function, see "Searching using the search function" on page 37 (GB).

(Continued)

❻ Index indicator

Displays INDEX MARK when an index has been marked.

❼ Caution indicator

Displays a caution.
For details on cautions, see "Alarm Messages" on page 97 (GB).

❽ PAL (DSR-45)/NTSC (DSR-45P) indicator

DSR-45: Appears for five seconds when you play back a PAL formatted tape.
DSR-45P: Appears for five seconds when you play back an NTSC formatted tape.

❾ DVCAM/DV indicator

In the EE or recording mode, displays the recording format selected in REC MODE on the VTR SET menu. During playback, displays the recording format of the picture.

❿ Audio mode indicator

In the EE or recording mode, displays the audio mode selected in AUDIO MODE on the AUDIO SET menu. During playback or audio dubbing, displays the audio mode recorded on the tape. When you input a signal to the DV jack, displays the audio mode of that signal.

⓫ Input signal indicator

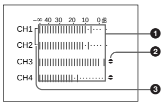
Displays the INPUT SELECT selector setting.

⓬ NS (Non standard) audio mode indicator

This item is shown when a tape recorded in the unlock audio mode is played back or when an unlock mode signal has been input to the DV jack. In EE mode, when REC MODE in the VTR SET menu is set to DV SP, this item is always shown.
For details on the unlock mode, see "Compatibility of DVCAM and DV Format" on page 101 (GB).

Audio screen

To display the audio screen, set the DISPLAY SELECT selector to AUDIO. You can confirm or adjust the audio levels and confirm the audio input signal settings on this screen.



❶ Audio levels

Displays the audio levels for each channel independently. When the audio mode is FS32K, the audio levels of four channels, channel 1 to 4, are displayed. When the audio mode is FS48K, the audio levels of channel 1 and 2 are displayed.
The unit detects the audio mode as follows.

- **In the playback mode:** Detects the audio mode recorded on the tape.
- **In the recording/EE mode:** Detects the selected audio mode in AUDIO MODE on the AUDIO SET menu.
- **When the INPUT SELECT selector is set to DV and a DV signal is being input:** Detects the audio mode of the signals being input. (The setting of AUDIO MODE on the AUDIO SET menu becomes invalid.)

In the EE, recording, or audio dubbing (only the audio dubbing channel) modes, if the input levels exceed 0 dB, the portions of the meters that exceed 0 dB turn to red. During playback, while DV signals are input or the AUDIO INPUT switch is set to AUTO, those portions of the levels meters do not turn to red.

❷ Audio dubbing symbol

This symbol appears associated with a channel on which you can dub sounds.
Appears when:

- a tape is being transported and pictures are displayed on the LCD monitor or on an external monitor.
- the unit is in the stop mode, a signal other than DV is selected, and you press the AUDIO DUB button.

Notes

- You can dub sounds only on a tape on which signals are recorded in the 32 kHz audio mode (4 channels, 12 bit) and in the DVCAM format.
- You can select a pair of channels to dub sounds using AUDIO DUB on the AUDIO SET menu.
- You cannot perform audio dubbing using a sound signal input via the DV jack. This symbol does not appear when DV signals are input.

❸ Link symbol

If the AGC (Auto Gain Control) of a pair of channels is linked, this symbol is placed between the channels. In the EE mode, if AGC CH1, 2 on the AUDIO SET menu is set to LINKED and the AUDIO INPUT switch is set to AUTO, channels 1 and 2 can be linked for AGC operation and for stereo sound where channel 1 is set for the left sound and channel 2 is set for the right sound.

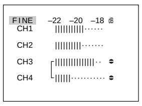
In the EE mode, if AGC CH3, 4 on the AUDIO SET menu is set to LINKED and the AUDIO INPUT switch is to AUTO, channels 3 and 4 can be linked for AGC operation and for stereo sound where channel 3 is set for the left sound and channel 4 is set for the right sound.

Note

When DV signals are input, the AGC does not function and channels are not linked. This symbol does not appear with a DV connection.

Fine audio levels screen

When the audio screen is displayed, pressing the FINE (AUDIO) button displays the fine audio levels screen. The screen is displayed only while you are pressing the FINE (AUDIO) button. You can adjust the audio recording levels precisely on this screen.



The fine audio levels screen displays narrower audio levels around the audio levels (–12/–18/–20 dB) selected in REF LEVEL on the AUDIO SET menu.

Notes

- Changing REF LEVEL on the AUDIO SET menu does not change the audio gain of the unit. According to the level of sounds you want to record, select an appropriate gain by setting the INPUT LEVEL selector on the rear panel. Then, adjust the audio recording levels using the AUDIO REC LEVEL control knobs.
- The standard output level of the AUDIO OUT connectors of the unit is +4 dBu. This is equivalent to –20 dB level for the full-bit maximum audio level (–18 dB level for the DSR-45P). This value is fixed and is not affected by the setting of REF LEVEL on the AUDIO SET menu.

Chapter 2

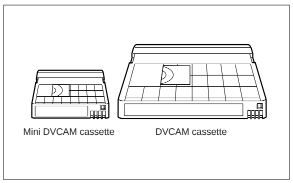
Playback and Recording

Notes on Video Cassettes

Usable cassettes

Use Standard-DVCAM cassettes or Mini-DVCAM cassettes with this unit. The PDV-184 can record programs for 184 minutes and the PDVM-40 can record for 40 minutes (DVCAM format).

You can get the highest quality pictures with this digital videocassette recorder using DVCAM cassettes. Using other cassettes does not ensure sufficient reliability. We recommend using DVCAM cassettes so that you can record your one-time events in the highest quality.

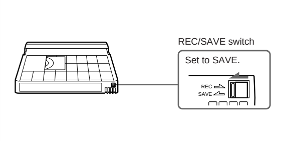


Cassette memory

Cassette memory is an optional feature that is mounted on some Standard DVCAM cassettes and Mini DVCAM cassettes. When you record a program, the recording date and time, and the programs’ position on the tape are stored in the cassette memory so that you can quickly locate the program later on. CM16K on a cassette indicates that you can use the cassettes to store up to 16 kbits of data. On this unit, you can use cassettes on which up to 16 kbits of data can be stored.

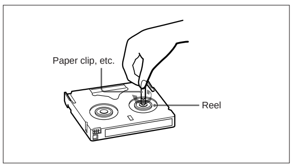
To save a recording

To prevent accidental erasure of a recording, slide in the REC/SAVE switch on the cassette so that the red portion becomes visible. To record on a tape, slide out the switch so that the red portion is hidden.



Checking the tape for slack

Using a paper clip or a similar object, turn the reel gently in the direction shown by the arrow. If the reel does not move, there is no slack.



Inserting/Ejecting Cassettes

To insert a cassette

Notes

- Do not insert the cassette forcibly. The unit may be damaged.
- Do not eject/load the cassette in a place subject to light. The internal sensor of the unit may operate incorrectly if too much light falls on the unit.

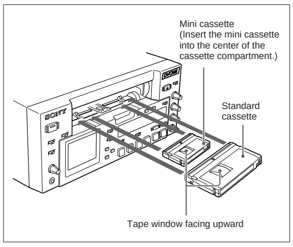
1 With the unit powered on, press the EJECT button.

   The cassette compartment opens.

2 After checking the tape for slack, hold the cassette so that the tape window is facing upward, then insert it into the unit.

   Notes

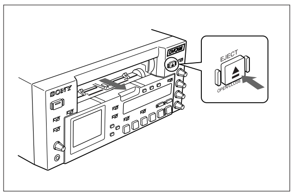
   - When inserting a cassette, hold the back edge of the cassette in the center and push it until the cassette is inserted deep into the unit. If you hold the ends, the cassette may not be loaded properly.
   - If the cassette does not load or is loaded only halfway, eject it once, then insert it again. In such a case, if you insert the cassette forcibly, the cassette may not be loaded properly or malfunctions may occur.
   - It takes a few seconds for the unit to recognize the cassette and find the proper location on the tape being loaded.


Mini cassette
(Insert the mini cassette into the center of the cassette compartment.)
Standard cassette
Tape window facing upward

The cassette is automatically loaded into the unit and the cassette compartment closes.

To eject the cassette

1 With the unit powered on, press the EJECT button.



The cassette is unloaded and ejected.

2 Remove the cassette from the unit. Press the EJECT button to close the cassette compartment.

Notes on Playback/Recording

No compensation for contents of the recording

Contents of the recording cannot be compensated for if recording or playback is not successful due to a malfunction of the unit, video tape, etc.

Copyright precautions

On recording

You cannot record any software having copyright protection signals on this unit. If you start recording protected video and audio signals, a warning appears on the monitor screen and the unit stops recording. During recording, if you change the INPUT SELECT selector setting, the unit may mistakenly recognize that a copyright protected signal has been input.

On playback

When you play back software having copyright protected signals on this unit, you may not be able to copy it onto other equipment.

Limitations caused by differences in format

The unit can record and play back tapes recorded in DVCAM format. It can also record and play back tapes recorded in DV format (SP mode).

However, due to differences in format, you may not be able to play back or edit some tapes affected by recording conditions of the tape (e.g., a tape originally recorded in DV format is dubbed in DVCAM format).

For details, see “Compatibility of DVCAM and DV Format” on page 101 (GB).

If a tape has both a portion recorded in the DVCAM format and one recorded in the DV format (SP mode), the following limitations are applied when you play back the tape with this unit:

- The image may be distorted and noise may occur at the point where the recording format changes on the tape.
- The tape transport control buttons may be disabled until the tape speed is stabilized.

Simple playback function for a tape recorded using the PAL system (for the DSR-45) or the NTSC system (for the DSR-45P)

The DSR-45 can play a PAL tape (the DSR-45P can play an NTSC tape) recorded in the DVCAM format or consumer DV format (SP mode only). This function has the following limitations:

- The video signals are output only to the LCD monitor and the MONITOR VIDEO output.
- The color system of the output video signal is that of the signals recorded on the tape played back. You cannot convert the signals into the other color system. If you want to display the MONITOR VIDEO output, you will need a video monitor able to handle the color system recorded on the tape.
- The MONITOR VIDEO output is optimized and adjusted for one color system (DSR-45: NTSC system; DSR-45P: PAL system). If you play back a tape recorded in the other color system, the levels and phases of the video signal may not be correct.
- The outputs from the VIDEO OUT, S VIDEO OUT and COMPONENT OUT connectors are muted.
- When the unit plays a tape recorded in the other color system (i.e., PAL for the DSR-45, or NTSC for the DSR-45P), the image, sound and time code may be distorted for a while at the beginning and the end of playback.
- The TC OUT connector outputs incorrect time code. Do not use this time code.
- The unit cannot play back in synchronization with the external sync signal.
- Noise reduction results for the luminance and chrominance signals may differ between PAL formatted tapes and NTSC formatted tapes.
- Even when the DSR-45 plays back a PAL formatted tape (or the DSR-45P plays back an NTSC formatted tape), you can control the basic tape transport functions using a device connected to the RS-422A or RS-232C connectors. However, any editing operations attempted in this case are not guaranteed.

Limitations regarding the differences in color systems

Except for the simple playback function for a tape recorded in the other color system, this unit is not compatible with any other color systems.

- This unit cannot record video signals of the other color system.
- Inputting the other format video signals does not output the EE pictures correctly. The video output may be muted and some signals may not be displayed.
- You may not be able to dub sound correctly from a tape recorded in the other color system in this unit.
- If a tape has both NTSC and PAL formatted video signals, the following limitations are applied when you play that tape with this unit:
  - – The image may be distorted and noise may occur at the point where the recording format changes on the tape.
  - – The tape transport control buttons may be disabled until the tape speed is stabilized.

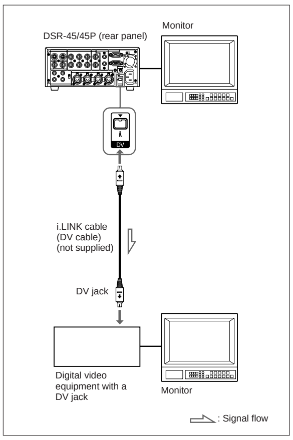
Playback

This section describes the connections, settings and operations necessary to perform playback on this unit. The same settings and operations apply whether you are using the unit as part of an editing system, for dubbing, or as a stand-alone videocassette player.

Connections for Playback

To digital video equipment with a DV jack

The video and audio signals are sent with hardly any degradation, enabling high-quality recording. The signal flow is automatically detected so you do not need to make separate connections for input and output.

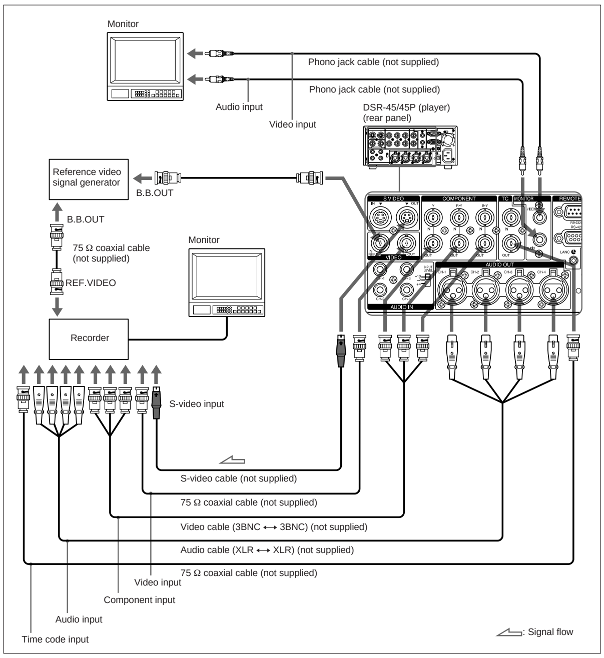

DSR-45/45P (rear panel)
Monitor
DV
i.LINK cable
(DV cable)
(not supplied)
DV jack
Digital video equipment with a DV jack
Monitor
: Signal flow

Notes

- With the DV connection, data codes (recording date/time, camera data) recorded on the source tape are transmitted to the recorder. As a result, when you play back a recorded tape on this unit and press the DATA CODE button on the Remote Commander, the same data codes as those recorded on the source tape are displayed on the monitor screen.
- The external lock function of this unit only supports the standard sync signals. With the DV connection, set EXT SYNC on the VIDEO SET menu to OFF to prevent malfunction resulting from noise, etc.
  For details on the VIDEO SET menu, see "VIDEO SET menu" on page 86 (GB).
- If no picture appears via the DV jack, disconnect the i.LINK cable (DV cable), then reinsert it straight.
- When connecting a device that has a 6-pin DV jack to this unit, first, connect the plug of the cable to the 6-pin DV jack.
- If the unit is connected to a device equipped with a 6-pin DV jack, when you intend to disconnect or reconnect the DV cable, turn off the device and pull out the plug of its power cord from the AC outlet beforehand. If you connect or disconnect the DV cable while the device is connected to the AC outlet, high-voltage current (8 to 40 V) is output from the DV jack of the device to this unit, which may cause a malfunction.
- If you connect the input connectors of this unit to the output connectors of a recorder or that of a monitor, a humming noise may be generated or the image may be distorted. If these phenomena occur, perform one of the following:
  - – Set DV EE OUT on the VTR SET menu to OFF.
  - – Set the INPUT SELECT selector to a position where a signal is not currently being input.
  - – Disconnect the cables.

To video equipment without a DV jack

You can connect this unit to video equipment without a DV jack. Use this unit as follows.
The following illustration shows an example of a configuration for dubbing a tape with its time code in the externally-synchronized playback mode. In this configuration, the recorder is a VCR equipped with XLR input connectors.


Monitor
Phono jack cable (not supplied)
Phono jack cable (not supplied)
Audio input
Video input
DSR-45/45P (player)
(rear panel)
Reference video signal generator
B.B.OUT
B.B.OUT
75 Ω coaxial cable
(not supplied)
REF.VIDEO
Monitor
Recorder
S VIDEO
COMPONENT
TC
MONITOR
REMOTE
VIDEO
AUDIO IN
AUDIO OUT
S-video input
S-video cable (not supplied)
75 Ω coaxial cable (not supplied)
Video cable (3BNC ←→ 3BNC) (not supplied)
Audio cable (XLR ←→ XLR) (not supplied)
75 Ω coaxial cable (not supplied)
Video input
Component input
Audio input
Time code input
: Signal flow

Connect one of the following as a video cable: video cable (3BNC ←→ 3BNC), S-video cable, 75 Ω coaxial cable.

Notes

- If you connect the input connectors of this unit to the output connectors of a recorder or that of a monitor, a humming noise may be generated or the image may be distorted. If these phenomena occur, perform one of the following:
  - – Set EE/PB SEL on the DISPLAY SET menu to PB.
  - – Set the INPUT SELECT selector to a position where a signal is not currently being input.
  - – Disconnect the cables.
- Text data (time code, warnings, menus, etc.) are superimposed only on the MONITOR VIDEO output.
- To play back in synchronization with the reference video (black burst) signal, set EXT SYNC on the VIDEO SET menu to ON.

Settings for Playback

Preparation on the player (this unit)

1 Power on the video monitor, then set the monitor's input switch according to the signals input.

2 Set up the recorder.
For details, refer to the instruction manual of the recorder.

3 Turn this unit on.

Playback Procedures

This section describes the procedures used to play back a tape and send signals to another VCR. For details on the procedures required when using a computer as a recorder, refer to the instruction manual of your computer or the user's manuals of the software installed on it.
When controlling this unit from an editing controller connected to the RS-232C or RS-422A connectors, see "Chapter 3 Using the Unit as a Player in an Editing System" on page 46 (GB).

1 After checking the tape for slack and confirming that the ▭ indicator is off, hold the cassette so that the tape window is facing upward, then insert it into this unit.

The cassette is automatically loaded into the unit.

For details on checking the tape for slack, see "Notes on Video Cassettes" on page 30 (GB).
For details on inserting a cassette, see "To insert a cassette" on page 31 (GB).

Note

Do not insert the cassette forcibly. The unit may be damaged.

2 Press the PLAY button on this unit.

This unit starts playback.

To stop playback
Press the STOP button on this unit.

To pause playback
Press the PAUSE button on this unit.

Notes

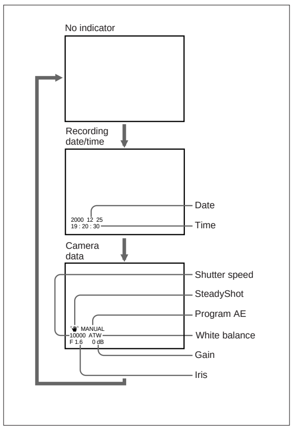
- When this unit plays back a part of the tape where the recording format has been changed between the DVCAM format and the DV format, the picture and sound may be distorted.
- The unit can play back only tapes recorded in the DVCAM format or in the SP mode of the DV format.

Playback Functions

Displaying information (data codes) recorded on a tape

If you record on a tape using a Sony digital camcorder (DSR-200/200P, 200A/200AP, PD100/PD100P, PD100A/PD100AP, PD150/PD150P, 250/250P, etc.), data codes can be recorded on the tape.
The data codes consist of recording date/time and camera data (the shutter speed, SteadyShot, iris, white balance, program AE mode, gain, date and time).
You can check these data items during playback on this unit.

First, set the DISPLAY SELECT selector to DATA. If the selector is set to other than DATA, the data codes are not displayed.
Press the DATA CODE button on the Remote Commander during playback.
Each time you press the DATA CODE button, the display changes in sequence as follows: no data code → recording date/time → camera data → no data code .....
Also, using DATA CODE on the DISPLAY SET menu, you can select a data item to be displayed.
For details on the DISPLAY SET menu, see "DISPLAY SET menu" on page 85 (GB).


No indicator
Recording date/time
2000 12 25
19 : 20 : 30
Date
Time
Camera data
MANUAL
10000 ATW
F 1.6 0 dB
Shutter speed
SteadyShot
Program AE
White balance
Gain
Iris

Notes

- If the data codes were not recorded, "- - -" appears instead.
- This unit cannot record camera data. Camera data items show the settings of a tape recorded by a digital camcorder (DSR-200/200P, 200A/200AP, PD100/PD100P, PD100A/PD100AP, PD150/PD150P, 250/250P, etc.).
- Some of the camera data items displayed by this unit are different from those shown on the digital camcorder.

Playing at various speeds

You can enjoy playback functions using the Remote Commander.

Playback options	Operation
Play at 1/10 of normal speed	Press × 1/10 button during playback.
Play at 1/3 of normal speed	Press × 1/3 button during playback.
Play at normal speed	Press × 1 button during playback.
Play at twice the normal speed	Press × 2 button during playback.
Play frame by frame	Press FRAME ◀II/II▶ buttons during pause. If you keep pressing one of these buttons, playback continues, frame by frame.
Fast forward the tape while monitoring pictures	Press the ⏩ button during normal playback or when playing at various speeds.
Rewind the tape while monitoring pictures	Press the ⏪ button during normal playback or when playing at various speeds.

To change playback direction

Press the FRAME ◀II/II▶ buttons during normal playback or when playing at various speeds.
To play back in the forward direction, press the II▶ button; in the backward direction, press the ◀II button.

To hear the sound while playing at various speeds

If you want to hear the sound when playing at various speeds, set JOG AUDIO on the AUDIO SET menu to ON.
For details on the AUDIO SET menu, see "AUDIO SET menu" on page 88 (GB).

Notes

- When the command mode of a Sony device / remote commander is set to VTR4;
  – if you press the ×1/3 button on the supplied Remote Commander while pointing it toward a Sony device other than this unit, the playback speed may turn to 1/5 of normal speed.
  – if you press the ×1/5 button on a remote commander while pointing it toward this unit, the playback speed will turn to 1/3 of normal speed.
- If the unit keeps playing at 1/10 of normal speed in forward or reverse for more than one minute, the unit will begin to play back forward at normal speed.
- Even if you set JOG AUDIO on the AUDIO SET menu to ON, sound may not be output or may be interrupted depending on differences in the recording formats (DVCAM/DV) or the condition of the tape.

Searching using the search function

There are four kinds of search available on this unit:
– Searching for the beginnings of recordings: Index search
– Searching for the boundaries of recorded tape by title: Title search*
– Searching for a point on the tape where the recorded date changes: Date search
– Searching for scenes recorded in the photo mode with a digital camcorder: Photo search

* A function available only on a cassette with cassette memory

To search for scenes, use the supplied Remote Commander or the Remote Control Unit (DSRM-20, not supplied).

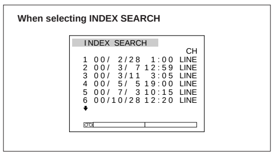
To search with the cassette memory

If you set CM SEARCH on the CM SET menu to ON and the cassette has cassette memory, the scenes are listed in the chronological order in which they were made. You can search using this chronological list.
If the cassette does not have cassette memory, you cannot search for scenes in chronological order.
For details on the CM SET menu, see "CM SET menu" on page 81 (GB).

1 Press the SEARCH SELECT button on the Remote Commander or the SEARCH MODE button on the Remote Control Unit (DSRM-20, not supplied) to select the search type: INDEX, TITLE, DATE or PHOTO SEARCH.

(Continued)

A chronological list appears on the monitor screen.


When selecting INDEX SEARCH

```
INDEX SEARCH
                          CH
1 00/ 2/28   1:00 LINE
2 00/ 3/ 7 12:59 LINE
3 00/ 3/11   3:05 LINE
4 00/ 5/ 5 19:00 LINE
5 00/ 7/ 3 10:15 LINE
6 00/10/28 12:20 LINE
```

The displayed forms of the date and time can be changed by setting DATE DISP and TIME DISP on the DISPLAY SET menu.
For the DSR-45P, "PROG" is displayed instead of "CH."
For details on the DISPLAY SET menu, see "DISPLAY SET menu" on page 85 (GB).

2 Press the ⏮ or ⏭ button to select a scene.

The unit starts searching and when it locates the scene, begins playback. During Photo search, the unit turns to the playback pause mode.

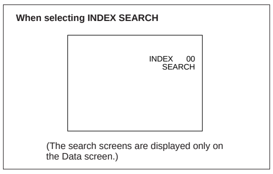
To search without cassette memory

When you use a cassette without cassette memory, the unit searches in the order of the actual positions of the scenes, regardless of the setting of CM SEARCH on the CM SET menu.
On a cassette with cassette memory, when you want to perform searches with this procedure, set CM SEARCH on the CM SET menu to OFF.
For details on the CM SET menu, see "CM SET menu" on page 81 (GB).

Note

Title search is not available when searching a cassette without cassette memory.

1 Press the SEARCH SELECT button on the Remote Commander or the SEARCH MODE button on the Remote Control Unit (DSRM-20, not supplied) to select the search type.


When selecting INDEX SEARCH

(The search screens are displayed only on the Data screen.)

2 Press the ⏮ or ⏭ button repeatedly to locate the scene you want.

Each time you press the ⏮ or ⏭ button, the unit searches for the previous or next search point. When a search point is located, its number is indicated on the monitor screen.
The unit starts searching backwards or forwards until the number comes to zero, then plays back the scene. During Photo search, the unit turns to the playback pause mode.

How signals are recorded

There are four different signal types, one for each search method; index, title, date and photo signals. They are recorded by the digital camcorder (DSR-200/200P, 200A/200AP, PD100/PD100P, PD100A/PD100AP, PD150/PD150P, 250/250P, etc.). However, the type of signal recorded and where it is recorded (on the tape or in the cassette memory) depend on whether the cassette has cassette memory or which type of video equipment is used for recording. Please note that if the signals for a certain search type are not recorded, you cannot perform that type of search. For details on the signals used for a particular type of search, refer to the instruction manual of the recorder.

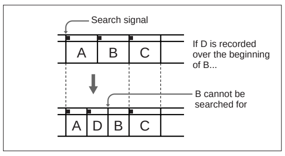
Signals that can be recorded on this unit are as follows.

Signals for	In cassette memory	On tape
Index search*	Yes	Yes
Title search	No	No
Date search	No	Yes
Photo search	No	No

* If AUTO INDEX on the VTR SET menu is set to ON and the unit is in the stop mode, when you start recording, the unit automatically marks a signal for Index search. If AUTO INDEX is set to OFF, the unit does not mark it. During recording, pressing the INDEX button on the unit or the INDEX WRITE button on the Remote Commander marks a signal for Index search regardless of the AUTO INDEX setting.

Notes

- If you record another program over the beginning of the search signals, you will not be able to locate the original program.



- You cannot add search signals after recording.
  To add a search signal for Auto Repeat, start recording from the point where you want to add it.
- When recording on this unit, signals for Index search do not have information on the day of the week.
- Searching may not be done correctly if the tapes were not recorded on Sony-brand digital video equipment.

About the cassette memory

- A tape with the CM mark has cassette memory. When using the 16 kbit cassette memory, you can store up to 135 search signals. (The number changes depending on the memory capacity of various cassettes. It also changes depending on the data size combination of index, title, date, photo, and tape label data stored on a tape.) This unit is capable of storing and retrieving up to 16 kbits of information in cassette memory.
- To locate scenes that did not fit in the cassette memory, or to locate scenes in order of their position on the tape, set CM SEARCH on the CM SET menu to OFF. You can use the same procedure to search for a scene on a tape without cassette memory.
  For details on the CM SET menu, see "CM SET menu" on page 81 (GB).

Note

The number of search signals that you can record is limited by the cassette memory space available when you start recording. When you use a previously recorded tape for repeated recordings, make more memory space available by erasing unwanted items using ITEM ERASE or ERASE ALL on the CM SET menu before you start recording.

Automatically playing back a tape repeatedly (Auto Repeat)

This unit can repeat the playback of all or a part of the tape.

1 Set the TIMER selector on the front panel of this unit to REPEAT.

2 Press the REW button. (If the tape is already rewound, press the PLAY button.)

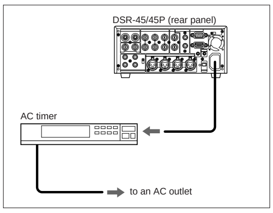
The unit rewinds the tape to its beginning, and starts playback automatically. The unit repeats the playback from the beginning to the first index (if there is no signal for Index search on the tape, to the next unrecorded portion; if there is no unrecorded portion, to the end of the tape).

(Continued)

Auto Repeat using an external AC timer

If you connect an external AC timer (not supplied) to this unit, you can repeat playback automatically at a preset time.

1 Connect this unit to an external AC timer (not supplied).



2 Set the TIMER selector on the front panel of this unit to REPEAT.

3 Set the starting time on the external AC timer.

At the preset time, the power of this unit turns on, and after a few seconds (no more than 30), Auto Repeat playback starts automatically. The unit repeats the playback from the beginning to the first index (if there is no signal for Index search on the tape, to the next unrecorded portion; if there is no unrecorded portion, to the end of the tape).

Notes

- The unit cannot detect a signal for Index search or an unrecorded portion within 20 seconds of the beginning of the playback.
- When you intend to turn the unit off, press the STOP button on this unit to stop the tape transport operation beforehand. If you turn the unit off while a tape is running, for example, by using an AC timer, the unit or the tape may be damaged.
- The editing software used on the digital non-linear editing system may mark an index signal on a tape itself. Therefore, if you use a tape on which signals transmitted from a digital non-linear editing controller are recorded or a copy tape made from one, using digital dubbing, Auto Repeat may not be performed correctly.

To stop Auto Repeat

Press the STOP button on this unit.

To release the Auto Repeat mode

Set the TIMER selector on the front panel to OFF.

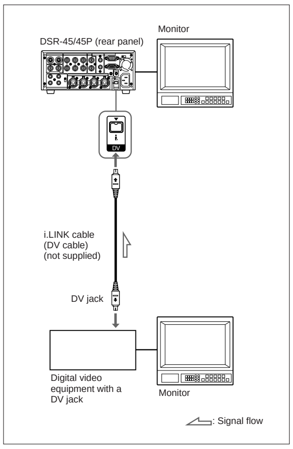
Recording

This section describes the connections, settings and operations necessary to perform recording on this unit. The same settings and operations apply whether you are using the unit for dubbing or as a stand-alone recorder.

Connections for Recording

To digital video equipment with a DV jack

The video and audio signals are sent with hardly any degradation, enabling high-quality recording. The signal flow is automatically detected so you do not need to make separate connections for input and output.

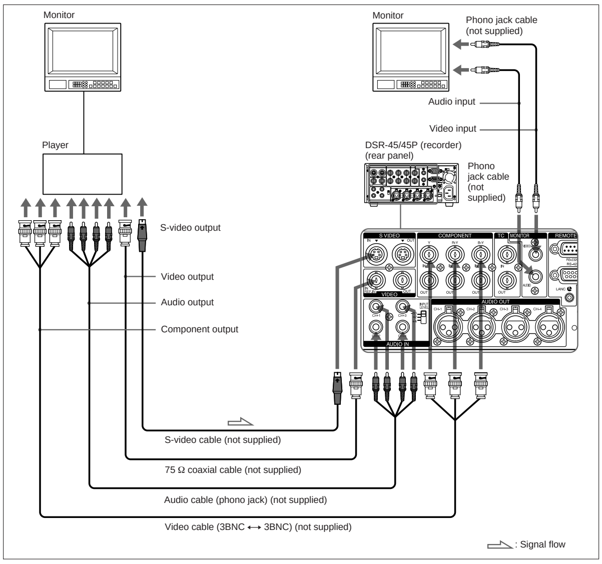


Notes

- With the DV connection, the sound is recorded in the same audio recording mode as that of the source tape. To record in a different audio recording mode from the source tape, use the analog connection instead.
- With the DV connection, data codes (recording date/time, camera data) recorded on the source tape are transmitted to the recorder (this unit). As a result, when you play back a recorded tape on this unit and press the DATA CODE button on the Remote Commander, the same data codes as those recorded on the source tape are displayed on the monitor screen. However, the contents of the cassette memory are not transmitted. If you want to transmit the contents of the cassette memory, use the duplicate function.
- If no picture appears via the DV jack, disconnect the i.LINK cable (DV cable), then reinsert it straight.
- When connecting a device that has a 6-pin DV jack to this unit, first, connect the plug of the cable to the 6-pin DV jack.
- If the unit is connected to a device equipped with a 6-pin DV jack, when you intend to disconnect or reconnect the DV cable, turn off the device and pull out the plug of its power cord from the AC outlet beforehand. If you connect or disconnect the DV cable while the device is connected to the AC outlet, high-voltage current (8 to 40 V) is output from the DV jack of the device to this unit, which may cause a malfunction.
- If you connect the output connectors of this unit to the input connectors of a player or that of a monitor, a humming noise may be generated or the image may be distorted. If these phenomena occur, perform one of the following:
  - – Set DV EE OUT on the VTR SET menu to OFF.
  - – Set the INPUT SELECT selector to a position where a signal is not currently being input.
  - – Disconnect the cables.

To video equipment without a DV jack

You can connect this unit to video equipment without a DV jack. Use this unit as a recorder as follows.



Connect one of the following as a video cable: video cable (3BNC ⟷ 3BNC), S-video cable, or 75 Ω coaxial cable.
Use a conversion cable for the audio connection, depending on types of audio output connectors on the player *(see page on 23 (GB))*.

Notes

- During recording, analog input signals can be output simultaneously from the DV jack for backup. Set DV EE OUT on the VTR SET menu to ON.
  For details on the VTR SET menu, see "VTR SET menu" on page 90 (GB).
- If you connect the output connectors of this unit to the input connectors of the player, a humming noise may be generated or the image may be distorted. If these phenomena occur, set the INPUT SELECT selector to a position where a signal is not currently being input, or disconnect the cables.

- Distorted signals (e.g., when played back at a speed other than normal) may not be recorded or may be distorted.

Settings for Recording

Preparation on the recorder (this unit)

Notes

- Before recording, set the date and time on the unit so that the recording time can be written into the search signal. You can set the date and time by setting CLOCK SET on the OTHERS menu.
  For details on the OTHERS menu, see "OTHERS menu" on page 92 (GB).
- Editing may not be possible with a signal that is copyright protected.

1 Power on the video monitor, then set the monitor's input according to the input signals.

2 Set up the player to play back a tape.
For details, refer to the instruction manual of the player.

3 Turn this unit on.

4 Select an input signal by switching the INPUT SELECT selector on this unit.

DV: to record input signals from the DV jack
S VIDEO: to record input signals from the S VIDEO IN connector
VIDEO: to record input signals from the VIDEO IN REF.IN connector
COMPONENT: to record input signals from the COMPONENT IN connector

Note

Do not change the selector setting during recording. Otherwise, noise is output to the picture and sound and that portion will not be recorded properly.

5 Select the audio mode. (With a DV connection, skip this step.)

Select the desired mode by setting AUDIO MODE on the AUDIO SET menu.

Audio mode	Set the menu to
4-channel mode	FS32K
2-channel mode	FS48K

For details on the AUDIO SET menu, see "AUDIO SET menu" on page 88 (GB).

6 Set the INPUT LEVEL selector on the rear panel properly according to the audio level of the player.

7 Select the audio recording level adjustment mode using the AUDIO INPUT switch.

Note

You cannot adjust the recording level if you record signals input via the DV jack.

8 If necessary, adjust the audio recording level by turning the AUDIO REC LEVEL control knobs.

You can adjust the recording level with the AUDIO REC LEVEL control knobs if you have selected MANU in step **7**. While looking at the audio level meters on the LCD monitor, turn the AUDIO REC LEVEL control knobs to adjust the recording level. Adjust the audio recording level so that it does not exceed 0 dB when the audio signal is at its maximum. If the recording level exceeds 0 dB, the recorded sound will be distorted.

Notes

- In the DVCAM format, there are two audio modes, with either two channels at FS48K or four channels at FS32K. It is not possible to select other modes (for example with two channels at FS32K).
- During recording, you cannot change the audio mode.
- If you intend to dub a sound on the tape after it has been recorded, set AUDIO MODE on the AUDIO SET menu to FS32K (4-channel mode) before recording.
  For details on the AUDIO SET menu, see "AUDIO SET menu" on page 88 (GB).

Recording Procedures

This section describes the procedures used to record signals sent from another VCR to this unit. For details on the procedures required when using a computer as a player, refer to the instruction manual of your computer or the user's manuals of the software installed on it.

1 After checking that the REC/SAVE switch on the cassette is set to REC, checking the tape for slack and confirming that the 📼 indicator is off, hold the cassette so that the tape window is facing upward, then insert it into this unit.

The cassette is automatically loaded into the unit and the tape will be ready to record.
For details on the REC/SAVE switch and checking the tape for slack, see "Notes on Video Cassettes" on page 30 (GB).
For details on inserting a cassette, see "To insert a cassette" on page 31 (GB).

Note

Do not insert the cassette forcibly. The unit may be damaged.

2 Press the playback button on the player.

The player starts playback.

3 On this unit, press the PLAY button while holding the REC button down.

The unit starts recording. If AUTO INDEX on the VTR SET menu is set to ON, the index is marked.

Note

When you do not want to mark an index at the beginning of the recording, set AUTO INDEX on the VTR SET menu to OFF.
For details on the VTR SET menu, see "VTR SET menu" on page 90 (GB).

To stop recording
Press the STOP button on this unit.

To pause recording
Press the PAUSE button on this unit.

To start recording using the Remote Control Unit (DSRM-20, not supplied)
On the Remote Control Unit, press the PLAY button while holding the REC button down.

Recording Functions

Marking an index

By pressing the INDEX button on the unit or the INDEX WRITE button on the Remote Commander during recording, you can mark an index signal at any place on the tape. The index signal is inserted for five seconds. If you mark an index at the scene you want to search for, you can easily find the scene later.
If AUTO INDEX on the VTR SET menu is set to ON, the index signal is marked automatically when the unit in the stop mode starts recording.
While the index is being marked, the "INDEX MARK" indicator appears for about seven seconds on the Data screen *(see page 27 (GB))*.
If you use a cassette with cassette memory, the index will also be marked in the cassette memory.

Notes

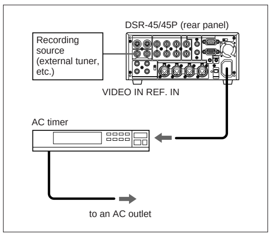
- You cannot mark a new index while the "INDEX MARK" indicator is being displayed.
- If you record on a portion of the tape where an index has been marked, the index will be erased. You cannot delete just an index while keeping the image or sound.
- You cannot mark an index during playback, duplicating or audio dubbing operations. The INDEX button and the INDEX WRITE button are disabled in these operations.
- The cassette memory space available limits the number of indexes that you can mark. When you use a previously recorded tape for repeated recordings, make more memory space available by erasing unwanted items using ITEM ERASE or ERASE ALL on the CM SET menu before you start recording.

To use an index during playback
You will need the Remote Commander or the Remote Control Unit (DSRM-20, not supplied).
For details on the playback functions using the Remote Commander, see "Searching using the search function" in "Playback Functions" on page 37 (GB).

AC timer recording

By connecting this unit to an external AC timer (not supplied), you can start recording at a preset time.

1 Connect this unit to an external AC timer (not supplied).



2 Insert a tape for recording.

3 Set the INPUT SELECT selector of this unit to select the input signal.

4 Set the TIMER selector on the front panel of this unit to REC.

5 Set the timer-on time on the connected AC timer.

At the preset time, the power of this unit turns on automatically and recording starts after a few seconds (no more than 30). Set the timer allowing a margin for the recording to start. You do not need to press the REC button.

Note

When you intend to turn the unit off, press the STOP button on this unit to stop the tape transport operation beforehand.
If you turn the unit off while a tape is running, for example, by using an AC timer, the unit or the tape may be damaged.

If the tape ends before the recording source stops operation
The tape stops.

To stop recording during timer recording
Press the STOP button on this unit.

To release the AC timer recording mode
Set the TIMER selector on the front panel of this unit to OFF.

Chapter 3

Using the Unit as a Player in an Editing System

Notes on Usage in the Editing System

If you use the unit in an editing system, the following functions are limited.

Notes on general

- When using the RS-422A/232C connectors to connect this unit to other equipment, you cannot place the unit as a recorder.
- This unit is not equipped with a synchronization function. Adjust the edit timing with the editing controller, and set sync grade to Preroll & Play.
- To make the unit comply with a command sent from an editing controller to locate a scene, set FF/REW SPD on the VTR SET menu to SHUTTLEMAX.
- Except when editing with the RS-422A connection, if the unit has been in the pause mode for the period specified in the menu, the unit will go into the tape protection mode.
- When you control this unit from an editing controller connected to the RS-422A connector:
  – if the TIMER selector is set to REPEAT, and the tape reaches its end point by fast-forwarding using the FF button, jog dial control via the editing controller is not available.
  – if the tape reaches its beginning or end using the REW or FF button, the unit turns to playback pause mode at a point a few seconds from its beginning or end.
- The TIMER selector setting has higher priority than the REMOTE/LOCAL switch setting. In an editing system, set the TIMER selector to OFF.
- Even if the REMOTE/LOCAL switch is set to REMOTE, the Remote Commander may function depending on the setting of LOCAL ENBL on the REMOTE menu. If you want to disable the Remote Commander, set COMMANDER on the OTHERS menu to CONTROL S.

Notes on editing

- When you control this unit from an editing controller connected to the RS-422A/232C connector in the editing system, editing via a DV connection is less accurate than editing via an analog connection.
- This unit is not equipped with the first edit function.
- Since this unit does not support CTL, if the time code recorded on the tape is out of sequence or the tape has a blank portion between recorded portions, you may not be able to use it for editing. In such a case, adjust the editing IN point.

- When the COUNTER SELECT selector on the front panel of this unit is set to COUNTER, the value determined by calculation based on the time code is displayed. The value is a simple approximation. Therefore, if you intend to use this unit as a player in the editing system, set the COUNTER SELECT selector to TC and also set the edit mode (EDIT REFERENCE) of the editing controller to time code (TC).

Settings on editing controller

When connecting an editing controller, make the following settings, according to the model used.

FXE-100/120

Set the VCR device constants as follows:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
80	31	00	96	05	05	0A	8A	0A	08	FE	00	80	5A	FF

FXE-100P/120P

Set the VCR device constants as follows:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
81	31	00	7D	05	05	0A	8A	0A	08	FE	00	80	5A	FF

BVE-600/2000 (NTSC model)

Set the VCR device constants as follows:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
80	31	00	96	05	05	0A	8A	0A	09	FE	00	80	5A	FF

BVE-600/2000 (PAL model)

Set the VCR device constants as follows:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
81	31	00	7D	05	05	0A	8A	0A	09	FE	00	80	5A	FF

RM-450/450CE

Set the DIP switches as follows:

Left switch

7	6	5	4	3	2	1	0
OFF	–	–	OFF	–	–	–	–

Right switch (RM-450)

7	6	5	4	3	2	1	0
OFF	–	OFF	ON	OFF	OFF	ON	ON

Right switch (RM-450CE)

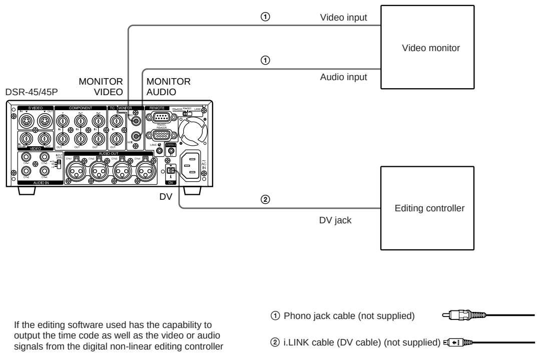
7	6	5	4	3	2	1	0
ON	–	OFF	ON	OFF	OFF	ON	ON

If the edit timing is out of adjustment, change the setting of items 0 to 2 of the right switch.

Connections for Digital Non-linear Editing

The unit can be connected to an editing controller via DV jacks to configure a digital non-linear editing system.
The following figure shows a connection diagram for non-linear editing system in which this unit serves.

For connection of the editing controller and its peripheral devices, refer to the instruction manual of the editing controller and that of the editing software you use.
Edit functions are specified by the editing software. For details on the editing methods used, refer to the instruction manual of the editing software.



If the editing software used has the capability to output the time code as well as the video or audio signals from the digital non-linear editing controller to this unit, and you intend to record the time code, set DV IN TC on the TC/UB SET menu of this unit to EXTERNAL.
For details on the TC/UB SET menu, see "TC/UB SET menu" on page 78 (GB).

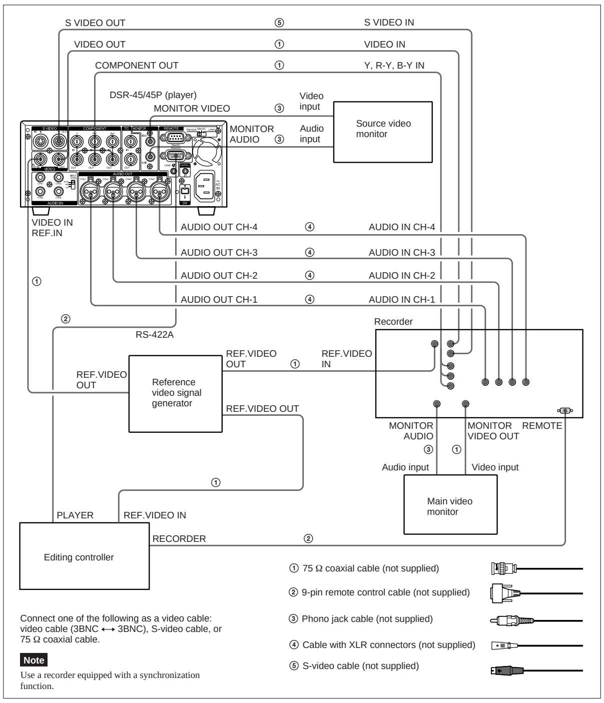
Note

If the unit is connected to a device equipped with a 6-pin DV jack, when you intend to disconnect or reconnect the DV cable, turn off the device and pull out the plug of its power cord from the AC outlet beforehand. If you connect or disconnect the DV cable while the device is connected to the AC outlet, high-voltage current (8 to 40 V) is output from the DV jack of the device to this unit, which may cause a malfunction.

Connections for a Cut Editing System

The following figure shows a cut editing system configuration that uses this unit as the player.
For details of connecting devices other than the DSR-45/45P, refer to the instruction manual of each device.

Note
The preroll time of the setting on the editing controller is required to be more than five seconds.


S VIDEO OUT
⑤
S VIDEO IN
VIDEO OUT
①
VIDEO IN
COMPONENT OUT
①
Y, R-Y, B-Y IN
DSR-45/45P (player)
MONITOR VIDEO
③
Video input
Source video monitor
MONITOR AUDIO
③
Audio input
VIDEO IN REF.IN
AUDIO OUT CH-4
④
AUDIO IN CH-4
AUDIO OUT CH-3
④
AUDIO IN CH-3
AUDIO OUT CH-2
④
AUDIO IN CH-2
AUDIO OUT CH-1
④
AUDIO IN CH-1
①
②
RS-422A
Recorder
REF.VIDEO OUT
①
REF.VIDEO IN
REF.VIDEO OUT
Reference video signal generator
REF.VIDEO OUT
MONITOR AUDIO
MONITOR VIDEO OUT
REMOTE
③
①
Audio input
Video input
①
Main video monitor
PLAYER
REF.VIDEO IN
RECORDER
②
Editing controller
① 75 Ω coaxial cable (not supplied)
② 9-pin remote control cable (not supplied)
③ Phono jack cable (not supplied)
④ Cable with XLR connectors (not supplied)
⑤ S-video cable (not supplied)

Connect one of the following as a video cable: video cable (3BNC ←→ 3BNC), S-video cable, or 75 Ω coaxial cable.

Note
Use a recorder equipped with a synchronization function.

Settings on the Editing Control Unit

For details on the settings of the Editing Control Unit, refer to “Adjusting Edit Timing” on page 56 (GB).

Settings on the DSR-45/45P (player) and a recorder

Switch	DSR-45/45P	Recorder
REMOTE/LOCAL	REMOTE	REMOTE
REMOTE	RS-422A	

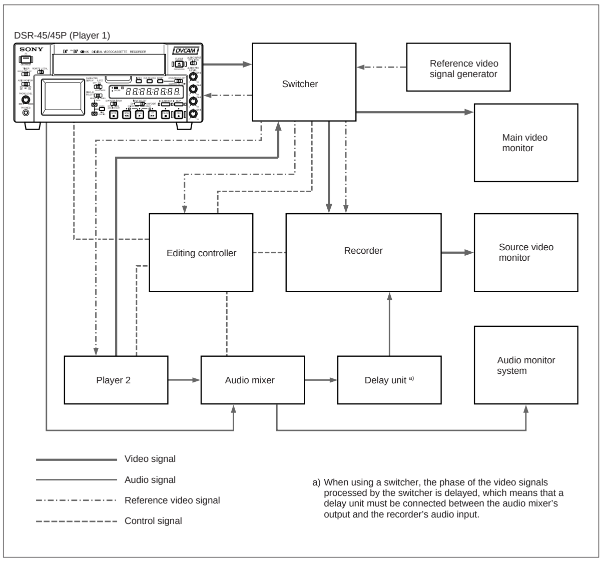
For details, refer to the instruction manual of the recorder.

About reference video signals

- In order to provide stable video and audio signals for analog editing, it is necessary for the built-in time base corrector (TBC) to operate correctly. To ensure this, input a reference video signal synchronized with the video signal to the VIDEO IN REF.IN connector.
- Set EXT SYNC on the VIDEO SET menu to ON.

Connections for an A/B Roll Editing System

The following is an example of a configuration of an A/B roll editing system using the DSR-45/45P and a recorder.
The purpose of the following figure is to clearly indicate the flow of signals among the component devices in this system. The specific connections and the recorder settings for this system are described on the following pages.


DSR-45/45P (Player 1)
Switcher
Reference video signal generator
Main video monitor
Editing controller
Recorder
Source video monitor
Player 2
Audio mixer
Delay unit a)
Audio monitor system
Video signal
Audio signal
Reference video signal
Control signal

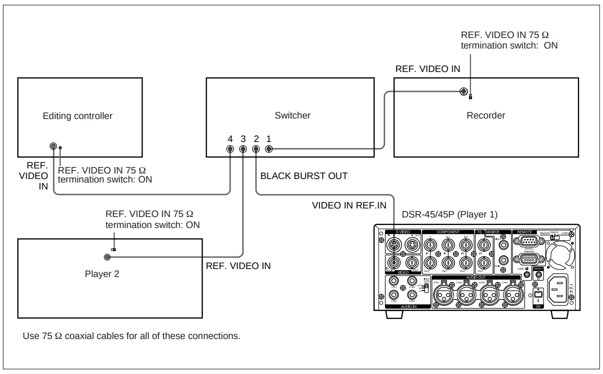
a) When using a switcher, the phase of the video signals processed by the switcher is delayed, which means that a delay unit must be connected between the audio mixer's output and the recorder's audio input.

Note
Use a recorder equipped with a synchronization function.

Reference video signal connection

When you perform editing, be sure to use a reference video signal.
For details on reference video signals, see “About reference video signals” on page 50 (GB).

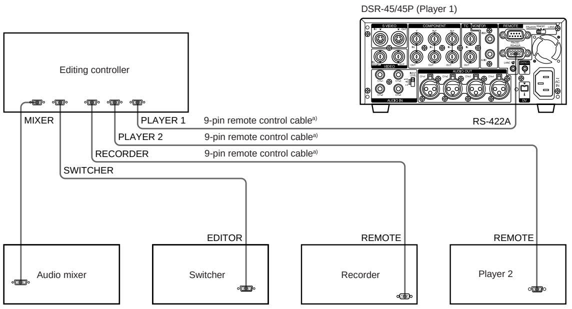
If you intend to make this unit perform playback synchronized with an external reference video signal, set EXT SYNC on the VIDEO SET menu to ON.


REF. VIDEO IN 75 Ω termination switch: ON
REF. VIDEO IN
Editing controller
Switcher
Recorder
4 3 2 1
REF. VIDEO IN
REF. VIDEO IN 75 Ω termination switch: ON
BLACK BURST OUT
VIDEO IN REF.IN
REF. VIDEO IN 75 Ω termination switch: ON
DSR-45/45P (Player 1)
Player 2
REF. VIDEO IN

Use 75 Ω coaxial cables for all of these connections.

Control signal connections

The following shows an example of the control signal connections needed to enable the editing controller to control all other A/B roll editing system devices.


DSR-45/45P (Player 1)
Editing controller
MIXER
PLAYER 1
PLAYER 2
RECORDER
SWITCHER
9-pin remote control cable[a]
9-pin remote control cable[a]
9-pin remote control cable[a]
RS-422A
EDITOR
REMOTE
REMOTE
Audio mixer
Switcher
Recorder
Player 2

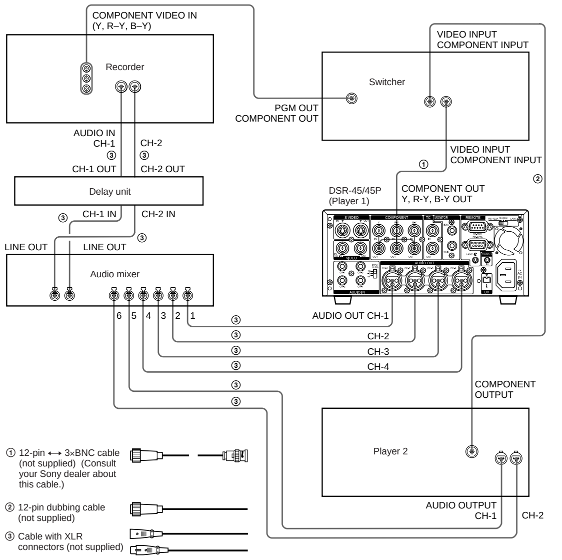
To control the unit from an editing controller, set the REMOTE/LOCAL switch of this unit to REMOTE. Furthermore, if you use an RS-422A connection, set the remote selector of this unit to RS-422A.

a) Use an optional 9-pin remote control cable.

Connections for an A/B Roll Editing System

Video/audio signal connections

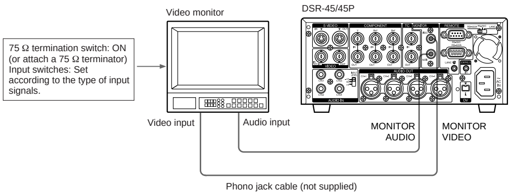
The following shows an example of video/audio signal connections in an A/B roll editing system. In this example, analog component signals are used as the video signals and XLR 3-pin connectors are used as audio output connectors.


COMPONENT VIDEO IN
(Y, R–Y, B–Y)
Recorder
VIDEO INPUT
COMPONENT INPUT
Switcher
PGM OUT
COMPONENT OUT
AUDIO IN
CH-1
CH-2
③
③
CH-1 OUT
CH-2 OUT
①
VIDEO INPUT
COMPONENT INPUT
②
Delay unit
DSR-45/45P
(Player 1)
COMPONENT OUT
Y, R-Y, B-Y OUT
③
CH-1 IN
CH-2 IN
③
LINE OUT
LINE OUT
Audio mixer
6 5 4 3 2 1
③
AUDIO OUT CH-1
③
CH-2
③
CH-3
③
CH-4
③
③
COMPONENT
OUTPUT
Player 2
AUDIO OUTPUT
CH-1
CH-2
① 12-pin ←→ 3×BNC cable (not supplied) (Consult your Sony dealer about this cable.)
② 12-pin dubbing cable (not supplied)
③ Cable with XLR connectors (not supplied)

For details of the video/audio input, connecting cables, and audio mode settings, refer to the instruction manuals for the devices used.

Connection of a video monitor

Set up the following connections to enable monitoring of video and audio signals on a video monitor. In addition to video signals, you can check time data, the DSR-45/45P's operation mode, alarm messages, and other information displayed as text on the monitor screen.


Video monitor
DSR-45/45P
75 Ω termination switch: ON (or attach a 75 Ω terminator)
Input switches: Set according to the type of input signals.
Video input
Audio input
MONITOR
AUDIO
MONITOR
VIDEO
Phono jack cable (not supplied)

Note

When you want to monitor the edited tape, use the monitor output connector on the recording VCR.

Adjusting Edit Timing

For details, refer to the instruction manuals of the editing controller you use.

Using this unit as a player with the RM-450/450CE

1. Set the SYNCHRO selector to ON.
2. Set item number 3 of the SYSTEM PRESET right switch to OFF (it is set to OFF at factory).

   Setting this to OFF adjusts the synchronization of the recorder.
3. Execute the LEARN function.

Using this unit as player 1 with the PVE-500

When using this unit as player 2, the relevant menu item is indicated in ( ).

1. Set Sync Edt of SEtUP-10 to OFF in the SETUP menu.
2. Set P1 dELAY (P2 dELAY) of SEtUP-13 (SEtUP-14) to LEArn in the SETUP menu.
3. Set rEC Sync of SEtUP-15 to On in the SETUP menu.
4. Set P1 Sync (P2 Sync) of SEtUP-16 (SEtUP-17) to OFF in the SETUP menu.
5. Execute the LEARN function.

Using this unit as a player 1 with the FXE-120/120P

- When using this unit as player 2, the relevant menu item is indicated in ( ).
- When using an FXE-100/100P that has been upgraded with an FXE-KIT1, the relevant menu item is indicated in [ ].

1. Display item 104 [301] SYNC GRADE in the SETUP menu, and set PLAYER1 (PLAYER2) to PREROLL & PLAY.
2. Display item 301 (302) [401 as player 1, 402 as player 2] DEVICE TYPE PLAYER1 (DEVICE TYPE PLAYER2) in the SETUP menu, and set the VCR device constants.
   For details on device constants, see page 47 (GB).
3. Execute the LEARN function.

   If the edit timing is out of adjustment, follow the instruction given in “Adjusting the IN point” below.

Adjusting the IN point

If the actual edited point does not accurately coincide with the preset editing point, perform a fine adjustment of the edit timing using the SETUP menu of the editing controller. This improves the editing accuracy.

1. Display item 301 (302) [401 as player 1, 402 as player 2] DEVICE TYPE PLAYER1 (DEVICE TYPE PLAYER2) in the SETUP menu, and change it from DISABLE to ENABLE.
2. Repeat the editing process several times and check the shift of the editing point; that is, count the number of frames to be adjusted.

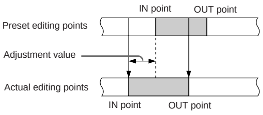
   Note

   The editing results may differ between the DISABLE and ENABLE settings of SETUP menu item 301 (302) [401 as player 1, 402 as player 2]. Be sure to check the editing results after changing the setting to ENABLE.

3 Change SETUP menu item 301 (302) [401 as player 1, 402 as player 2] from BYTE 01 to BYTE 10, and calculate the adjustment value.

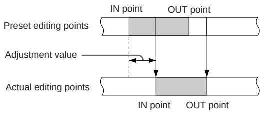
How to calculate the adjustment value

If the actual IN point shifts forward to the IN point preset on the player;


IN point
OUT point
Preset editing points
Adjustment value
Actual editing points
IN point
OUT point

08 (default setting) + number of frames obtained in step **2**
Example: To adjust 5 frames
08 + 05 = 0D
The adjustment value is calculated in hexadecimal.

If the actual IN point shifts backward to the IN point preset on the player;


IN point
OUT point
Preset editing points
Adjustment value
Actual editing points
IN point
OUT point

08 (default setting) – number of frames obtained in step **2**
Example: To adjust 5 frames
08 – 05 = 03

4 Perform a trial editing process and confirm the results of the adjustment.

Repeat steps **3** and **4** until the best possible result is obtained.

Using this unit as a player with the BVE-600

1 Set the sync grade (menu 2) to mode number 4, PREROLL & PLAY in auxiliary mode.

2 Set the VCR device constants in the setting mode.
For details on device constants, see page 47 (GB).

Notes

- If FF/REW SPD on the VTR SET menu of this unit is set to FF/REW when the unit rewinds or fast-forwards the tape, the time code may not be displayed on the editing controller. In this case, set FF/REW SPD to SHUTTLEMAX.
  For details on FF/REW SPD, see page 90 (GB).
- When editing, use a time code.
- Depending on the type of device you are using as a recorder, the actual edited point may not accurately coincide with the preset editing point. In this case, adjust the VCR device constants of the editing controller (CONST8 (Start Delay) in BYTE-2 in BLOCK-2).

Using this unit as a player with the BVE-2000

1 Set SYNC GRADE (synchronous accuracy) in the AUX mode to PREROLL & PLAY.

2 Display VTR CONSTANT or OPTION VTR CONSTANT on the setup menu, and set the VCR device constants.

Notes

- It is advisable to set JOG DIAL RESPONSE in SYSTEM CONFIGURATION on the setup menu to LOW.
- When editing, use a time code.

Chapter 4

Setting the Time Code and Adjusting the Video Signals

Setting the Time Code and User Bits

This unit can set, display, record and play back the time code and user bits. The unit can also output the time code read from the tape as an analog (LTC) signal when it is played back at normal speed, and receive an external analog time code (LTC) signal.

Note

The items other than JOG TC OUT on the TC/UB SET menu can be set only when you record in DVCAM format.

Using the Internal Time Code Generator

You can set the initial time code value generated by the internal time code generator. In addition, you can set the user bits to record data such as the date, time, scene number, reel number, or other useful information. The time data settings are set by using the menu.
For details on the menu, see "Chapter 6 Adjusting and Setting Through Menus" on page 76 (GB).

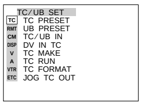
To set the initial time code value

This section describes how to set the time code's initial value.

Notes

- The time code can be set only in a DVCAM format recording. It cannot be set in a DV format recording. Make sure to set REC MODE on the VTR SET menu to DVCAM.
- To set the initial time code value, you need to set TC/UB IN on the TC/UB SET menu to INTERNAL and TC MAKE to PRESET beforehand.
  For details on TC/UB IN and TC MAKE, see "TC/UB SET menu" on page 78 (GB).
- While you are setting the initial time code value using a device connected to the RS-422A/232C connector, TC PRESET on the TC/UB SET menu is disabled.

1 Display the menu on the monitor.
For details on displaying the menu, see "Operating the Menus" on page 76 (GB).

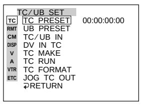

TC/UB SET
TC TC PRESET
RMT UB PRESET
CM TC/UB IN
DISP DV IN TC
V TC MAKE
A TC RUN
VTR TC FORMAT
ETC JOG TC OUT

(The TC FORMAT submenu is only available on the DSR-45.)

---

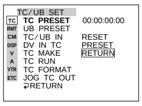
2 Press the ⇧/⇩ buttons to select TC/UB SET, then press the EXEC button.

The following menu appears.


TC/UB SET
TC TC PRESET 00:00:00:00
RMT UB PRESET
CM TC/UB IN
DISP DV IN TC
V TC MAKE
A TC RUN
VTR TC FORMAT
ETC JOG TC OUT
⮐RETURN

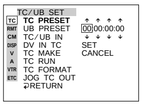
3 Press the ⇧/⇩ buttons to select TC PRESET, then press the EXEC button.

The following menu appears.


TC/UB SET
TC TC PRESET 00:00:00:00
RMT UB PRESET
CM TC/UB IN RESET
DISP DV IN TC PRESET
V TC MAKE RETURN
A TC RUN
VTR TC FORMAT
ETC JOG TC OUT
⮐RETURN

4 Press the ⇧/⇩ buttons to select PRESET, then press the EXEC button.

The following menu appears.


TC/UB SET
TC TC PRESET ↑ ↑ ↑ ↑
RMT UB PRESET 00:00:00:00
CM TC/UB IN ↓ ↓ ↓ ↓
DISP DV IN TC SET
V TC MAKE CANCEL
A TC RUN
VTR TC FORMAT
ETC JOG TC OUT
⮐RETURN

5 Set the first two digits. Press the ⇧/⇩ buttons to select the number, then press the EXEC button.

6 Repeat step **5** to set the other digits.

7 Press the ⇧/⇩ buttons to select SET, then press the EXEC button.

The initial time code value is set and the menu display returns to that of step **2**.

8 Press the ⇧/⇩ buttons to select ⮐RETURN, then press the EXEC button.

The menu display returns to that of step **1**.

To cancel the time code setting

Select CANCEL in step **7**, then press the EXEC button.

To reset the time code

Select RESET in step **4**, then press the EXEC button.

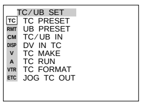
To set the value of the user bits

You can set the user bits as eight-digit hexadecimal values (base 16) to have the date, time, scene number, and other information inserted into the time code track.

Notes

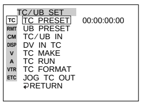
- The user bits can be set only in a DVCAM format recording. They cannot be set in a DV format recording.
- To set the user bits, you need to set TC/UB IN on the TC/UB SET menu to INTERNAL beforehand.
  For details on TC/UB IN, see "TC/UB SET menu" on page 78 (GB).
- While you are setting the user bits using a device connected to the RS-422A/232C connector, UB PRESET on the TC/UB SET menu is disabled.

1 Display the menu on the monitor.
For details on displaying the menu, see "Operating the Menus" on page 76 (GB).


TC/UB SET
TC TC PRESET
RMT UB PRESET
CM TC/UB IN
DISP DV IN TC
V TC MAKE
A TC RUN
VTR TC FORMAT
ETC JOG TC OUT

2 Press the ⇧/⇩ buttons to select TC/UB SET, then press the EXEC button.

The following menu appears.

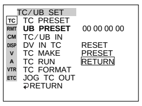

TC/UB SET
TC TC PRESET 00:00:00:00
RMT UB PRESET
CM TC/UB IN
DISP DV IN TC
V TC MAKE
A TC RUN
VTR TC FORMAT
ETC JOG TC OUT
⮐RETURN

(Continued)

---

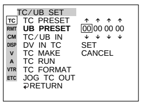
3 Press the ⇧/⇩ buttons to select UB PRESET, then press the EXEC button.

The following menu appears.


TC/UB SET
TC TC PRESET
RMT UB PRESET 00 00 00 00
CM TC/UB IN
DISP DV IN TC RESET
V TC MAKE PRESET
A TC RUN RETURN
VTR TC FORMAT
ETC JOG TC OUT
⮐RETURN

4 Press the ⇧/⇩ buttons to select PRESET, then press the EXEC button.

The following menu appears.


TC/UB SET
TC TC PRESET ↑ ↑ ↑ ↑
RMT UB PRESET 00 00 00 00
CM TC/UB IN ↓ ↓ ↓ ↓
DISP DV IN TC SET
V TC MAKE CANCEL
A TC RUN
VTR TC FORMAT
ETC JOG TC OUT
⮐RETURN

5 Set the first two digits. Press the ⇧/⇩ buttons to select the number, then press the EXEC button.

6 Repeat step **5** to set the other digits.

7 Press the ⇧/⇩ buttons to select SET, then press the EXEC button.

The user bits are set and the menu display returns to that of step **2**.

8 Press the ⇧/⇩ buttons to select ⮐RETURN, then press the EXEC button.

The menu display returns to that of step **1**.

To cancel the user bits setting

Select CANCEL in step **7**, then press the EXEC button.

To reset the user bits

Select RESET in step **4**, then press the EXEC button.

To select the time code/user bits to be recorded on the tape

You can set the time code and user bits to be recorded on the tape by setting TC/UB IN on the TC/UB SET menu.

INTERNAL: Uses the internal time code/user bits.
TC&UB EXT: Uses the external time code/user bits.
TC EXT: Uses the external time code and internal user bits.
UB EXT: Uses the internal time code and external user bits.

Notes

- This unit has a DV jack. The time code input or output is different when you connect the unit to an external device via this DV jack or via another input/output connector.
  For details, see "DSR-45/45P time codes" on page 63 (GB).
- The time code output from this unit has some restrictions.
  For details, see "Notes on the Time Codes" on page 64 (GB).

To select the time code to be recorded when DV signals are recorded in DVCAM format

Set DV IN TC on the TC/UB SET menu to select whether to record the internal time code or an external one.

INTERNAL: Records the time code internally generated.
EXTERNAL: Records the time code with video and audio signals input via the DV jack.

Notes

- When this item is set to EXTERNAL, the setting of TC/UB IN on the TC/UB SET menu turns to invalid. The time code input via the DV jack and the user bits set in UB PRESET are recorded.
- When you set REC MODE on the VTR SET menu to DV SP, this item cannot be used. Even if this item is set to EXTERNAL, when you set REC MODE on the VTR SET menu to DV SP, the setting becomes invalid and the unit records the internal time code.

- When this item is set to EXTERNAL, the INPUT SELECT selector on the front panel is set to DV, and no signal is input via the DV jack, or the software of the editing controller does not output a time code, if you start recording, bars (– –:– –:– –:– –) are recorded as time code. At the point that the input of a signal begins, the time code of that signal will be recorded.
- When this item is set to EXTERNAL, if you input time code to the DV jack that is not continuous or does not advance correctly, the value of the recorded or displayed time code may not be equal to the actual value of the input one. If you use a tape with this problem, you may not be able to perform search or edit, depending on the devices you use.

To set the time code when the recording starts

Set TC MAKE on the TC/UB SET menu to select the time code to be recorded when recording starts.

REGEN: The time code value is set to continue the time code from the time code already recorded on the tape. If you start recording from a blank portion of the tape, the time code starts from 00:00:00:00.

PRESET: The time code starts from the value set in TC PRESET on the TC/UB SET menu.

To set the advancement mode

Set TC RUN on the TC/UB SET menu to switch the advancement mode (counting up).

REC RUN: Time code advances only while recording.

FREE RUN: Time code advances even when the unit is not recording. This mode is used to set the current time as the initial time code value, or to synchronize the internal time code to an external one.

Notes

- If you set the advancement mode to FREE RUN, the time code will be updated by the internal clock while the unit's power is off. The time code may have been delayed or advanced somewhat if you turn on the unit power again, play back a tape, or set the INPUT SELECT selector to DV.
- If the internal backup battery charge is exhausted, the time code of the FREE RUN setting will be initialized. The internal backup battery is fully charged if you connect the power to the unit for about 8 hours. A fully charged internal battery can run for about two weeks.

To set the frame mode (DSR-45 only)

Set TC FORMAT on the TC/UB SET menu to switch the frame mode.

AUTO: Automatically sets the mode in accordance with the loaded tape.
If nothing is recorded on the tape, the mode is set to the non-drop frame mode. If the unit cannot read the frame mode correctly from the tape, the unit will use the mode that was set in the last position it was able to read correctly on the tape. If you remove the cassette, the mode of the last position it was able to read correctly is cleared and the mode is set to the non-drop frame mode. If TC MAKE is set to PRESET, the mode is also set to the non-drop frame mode.

DF: Selects the drop frame mode.

NDF: Selects the non-drop frame mode.

Note

In a DV format recording, the drop-frame mode is used automatically.

To switch the time code output when playing at various speeds (JOG)

Set JOG TC OUT on the TC/UB SET menu to control the time code output from the TC OUT connector when the tape is played at various speeds.

OFF: Does not output the time code.

ON: Outputs the time code.

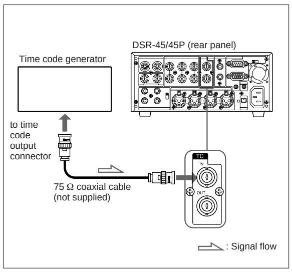
Note

Continuous time code is output only when the tape is played at normal speed. When the unit is in the jog or search mode, discontinuous time code is output.

Synchronizing the Time Codes

You can synchronize the internal time code generator of the unit with an external time code signal (LTC).

Connecting to the Time Code Generator


DSR-45/45P (rear panel)
Time code generator
to time code output connector
TC
IN
OUT
75 Ω coaxial cable (not supplied)
: Signal flow

To synchronize the internal time code to an external time code

1 Set the INPUT SELECT selector to other than DV.

2 Input an external time code (LTC) signal to the TC IN connector of the unit.

3 Set TC/UB IN on the TC/UB SET menu to TC&UB EXT or TC EXT.

4 Set TC RUN on the TC/UB SET menu to FREE RUN.

The internal time code generator locks onto the external time code and starts advancing. Once the internal time code generator has become synchronized in this way, you can disconnect the external time code input and this unit will maintain the time code.

Notes

- This unit has a DV jack. The time code input/output with a DV connection is different from that with other analog connections.
For details, see "DSR-45/45P time codes" on page 63 (GB).
- The time code output from this unit has some restrictions.
For details, see "Notes on the Time Codes" on page 64 (GB).

To confirm external synchronization

Before you start recording, check that the internal time code is synchronized with the external time code. Press the STOP button to turn the unit to the stop mode, then press the REC button.
Look at the time counter display and check that the time code value displayed there matches the external time code value.

DSR-45/45P time codes

This unit has a DV jack. The time code output and recorded on the tape differs as shown below when the INPUT SELECT selector is set to DV and when it is set to other than DV.

When DV IN TC is set to INTERNAL

	TC/UB IN menu	INPUT SELECT selector	Mode	TC IN	The time code output from the TC OUT connector and the time code/ user bits recorded on the tape
Playback			Playback Audio dubbing		Time code/user bits on the tape
			Playback at various speeds [a)] DUB1 [b)]		JOG TC OUT: ON – Time code/user bits on the tape; JOG TC OUT: OFF – Mute (No output)
EE	INTERNAL	DV	Duplicate DUP1 [b)]		Time code/user bits of another device connected to the DV jack [c)]
			Recording Recording Pause REC1 [b)]		Time code/user bits internally generated [c)]
		S VIDEO VIDEO COMPONENT (Except DV)	Recording Recording Pause REC1 [b)]		Time code/user bits internally generated [c)]
	TC&UB EXT TC EXT UB EXT	DV	Duplicate DUP1 [b)]		Time code/user bits of another device connected to the DV jack [c)]
			Recording Recording Pause REC1 [b)]		Time code/user bits internally generated [c)]
		S VIDEO VIDEO COMPONENT (Except DV)	Recording Recording Pause REC1 [b)]	Yes	Time code/user bits connected to TC IN are through-output.
				No	No output from the TC OUT connector *(For details, see next page.)* : the time code generated internally is recorded on the tape[d)].

When DV IN TC is set to EXTERNAL and the INPUT SELECT selector is set to DV

	Mode	The time code output from the TC OUT connector and the time code/user bits recorded on the tape
EE	Duplicate DUP1 [b)]	Time code/user bits of another device connected to the DV jack [c)]
	Recording Recording Pause REC1 [b)]	Time code input of another device connected to the DV jack and user bits internally generated [e)]

a) This includes stop, fast-forward or rewind. If the unit cannot read the time code on the tape correctly, the counter displays "– –:– –:– –:– –" and the time code is not output from the TC OUT connector.

b) "DUB1", "DUP1" and "REC1" represent the state of the unit when you press each of these buttons (AUDIO DUB, DUP or REC) in the stop mode. If the counter displays "– –:– –:– –:– –", the time code is not output from the TC OUT connector when you press the AUDIO DUB button in the stop mode.

c) The time code is also displayed on the time counter display in the display window.

d) When TC/UB IN is set to TC EXT, the user bits set in UB PRESET are recorded. When TC/UB IN is set to UB EXT or TC&UB EXT, "00 00 00 00" is recorded as the user bits.

e) Only when REC MODE on the VTR SET menu is set to DVCAM. When REC MODE is set to DV SP, the internally generated time code is output.

Notes on the Time Codes

Time codes output from the unit have the following restrictions:

- The unit outputs an EE signal when it is in recording or recording pause modes, or when you press the REC button.
While the unit is outputting an EE signal, only the time code from an external device that is connected to the TC IN connector will be through-output from the TC OUT connector when the INPUT SELECT selector is set to other than DV, and TC/UB IN on the TC/UB SET menu has been set to other than INTERNAL. (The time code and user bits that are internally generated are not output from the TC OUT connector.)
In this case, as a result, the time code will not be output from the TC OUT connector when the time code is not input from the external device connected to the TC IN connector.
You need to set TC/UB IN on the TC/UB SET menu to INTERNAL to output a time code from the TC OUT connector even if no time code has been input from an external device connected to the TC IN connector.
To set the unit to inherit a time code from the external device even after you set TC/UB IN to INTERNAL from some other setting, follow the steps below.

1 Match the settings (used when TC/UB IN is set to INTERNAL) of the unit with the external device format. (See the setting example below.)

2 After setting TC/UB IN to other than INTERNAL, connect the external device to the TC IN connector to input the time code.

3 Set TC/UB IN on the TC/UB SET menu to INTERNAL.

4 Disconnect the external device from the TC IN connector.

Setting example

If the time code setting of the external device is TC: Drop frame; UB: 12 34 56 78.

This unit's menu	Setting
TC RUN	FREE RUN
TC FORMAT	DF
UB PRESET	12 34 56 78

(The TC FORMAT submenu is only for the DSR-45.)

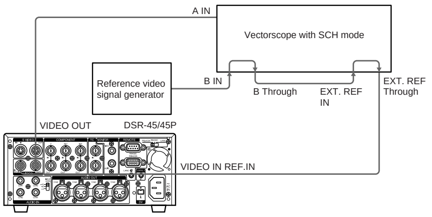
- The internal time code is output with the phase synchronized to the line-outs (COMPONENT OUT, S VIDEO OUT, VIDEO OUT) when TC/UB IN on the TC/UB SET menu is set to INTERNAL.
(When the EE signal is output, the output signals of the line-outs are delayed for one line from the input video signal when component video or S-video is input, and delayed for two lines from the input video signal when composite video (VIDEO IN REF.IN) is input.)
- When inputting signals from the DV jack, if you set DV IN TC to INTERNAL, the time code and user bits generated internally are recorded under the INTERNAL setting in TC/UB IN on the TC/UB SET menu. If you want to record with the time code input from the DV jack, set DV IN TC to EXTERNAL or use the duplicate function.
- When REC MODE on the VTR SET menu is set to DVCAM, if you set DV IN TC to EXTERNAL, this unit records the time code input via the DV jack and the user bits internally generated, and the TC OUT connector outputs the same time code and user bits.
- During the duplicate operation, this unit records the time code and user bits on the source tape currently being duplicated and the TC OUT connector outputs the same time code and user bits. The time code and user bits are output with the phase synchronized to the line-outs (COMPONENT OUT, S VIDEO OUT, VIDEO OUT) during the duplicate operation.
For details on the duplicate function, see "Duplication (generating a work tape with the same time code)" on page 69 (GB).
- During the audio dubbing operation, the TC OUT connector outputs the time code and user bits on the tape currently being played.
For details on audio dubbing, see "Audio Dubbing" on page 74 (GB).
- To display and check the time code currently being advanced with the FREE RUN setting, press the REC button when all the conditions below are met.
  - The unit is in the stop mode.
  - The COUNTER SELECT selector is set to TC.
  - TC RUN on the TC/UB SET menu is set to FREE RUN.
  - TC MAKE on the TC/UB SET menu is set to PRESET.

  If you press the STOP button, the time code display returns to the last time code value it was able to read on the tape.

- If the external time code input is discontinuous or does not advance correctly, the time code input may be delayed compared to the time code recorded on the tape or the time code shown on the display of this unit. If there is a discontinuous time code on your recorded tape, you may not be able to edit or search correctly, depending on the device connected to this unit.

Adjusting the Sync and Subcarrier Phases of the Video Signals

When you adjust the phases of the video signals, follow the steps below.


A IN
Vectorscope with SCH mode
Reference video signal generator
B IN
B Through
EXT. REF IN
EXT. REF Through
VIDEO OUT
DSR-45/45P
VIDEO IN REF.IN

Performing a phase adjustment operation

1 Press the SCH button on the vectorscope.

The vectorscope goes into the “SCH” mode.

2 Press the B channel button on the vectorscope.

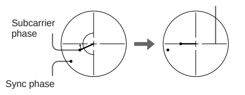
The black burst signal from the reference video signal generator is selected.

3 Press the EXT button on the vectorscope.

The vectorscope goes into the external synchronization mode.

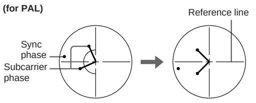
4 Adjust the phase synchronization control on the vectorscope so that the sync and subcarrier phases are close to the reference line.

(for NTSC)


Reference line
Subcarrier phase
Sync phase

Align the sync and subcarrier phase of the black burst signal to the reference line.

(for PAL)


Reference line
Sync phase
Subcarrier phase

Align the sync phase of the black burst signal to the reference line.
Align the subcarrier phase of the black burst signal symmetrically up and down.

5 Set EXT SYNC on the VIDEO SET menu to ON, then play back a tape on this unit.

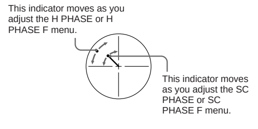
6 Press the A channel button on the vectorscope.

The vectorscope displays the sync phase and subcarrier phase (composite signals only) of the signal from this unit.

7 Adjust the SYNC control using H PHASE on the VIDEO SET menu for rough adjustment, then adjust H PHASE F for fine adjustment, so that the output from this unit on channel (A) is in correct phase alignment with the black burst signal on channel (B).

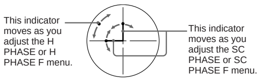
8 Adjust the SC control using SC PHASE on the VIDEO SET menu for rough adjustment, then adjust SC PHASE F for fine adjustment, so that the output from this unit on channel (A) is in correct phase alignment with the black burst signal on channel (B).

(for NTSC)


This indicator moves as you adjust the H PHASE or H PHASE F menu.
This indicator moves as you adjust the SC PHASE or SC PHASE F menu.

Adjust the sync and subcarrier phase of the output signal from this unit.

(for PAL)


This indicator moves as you adjust the H PHASE or H PHASE F menu.
This indicator moves as you adjust the SC PHASE or SC PHASE F menu.

Adjust the sync and subcarrier phase of the output signal from this unit.

Note

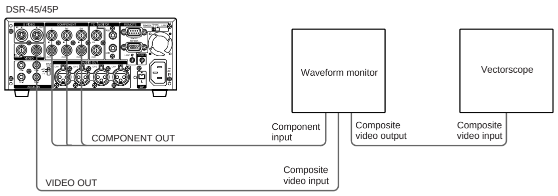
When component signals are used, the subcarrier phase indicator does not appear.

Adjusting the Signals

You can adjust each signal level of the component output signal and the chrominance signal gain level of the composite signal.
Connect the reference video (black burst) signal one-to-one with a device that generates the reference video signal, or make a loop-through connection. If the device has a terminal switch, terminate the connection properly.
You need both a waveform monitor and a vectorscope to display the component signals.

Notes

- You cannot adjust the Y level of the component signal, that of the composite signal and that of the S-video signal independently.
- The chrominance levels of the composite and S-video signals are affected by the adjustment of the R-Y and B-Y levels of the component signal.
- Adjust the output level while playing the tape.
- You cannot adjust the signals output from the DV jack.


DSR-45/45P
Waveform monitor
Vectorscope
Component input
Composite video output
Composite video input
COMPONENT OUT
VIDEO OUT
Composite video input

Adjusting the component signal level

1 Play back a tape to output the signals from the Y, R-Y and B-Y connectors of the COMPONENT OUT connectors.

The waveform monitor displays the relevant information.

2 Adjust the Y, R-Y, and B-Y signal levels in PB LEVEL on the VIDEO SET menu.
Y LEVEL: Adjusts the Y signal level.
R-Y LEVEL: Adjusts the R-Y signal level.
B-Y LEVEL: Adjusts the B-Y signal level.
For details on “PB LEVEL,” see “VIDEO SET menu” on page 86 (GB).

Adjusting the chrominance signal gain level of the composite signal

1 Play back a tape to output the signals from the VIDEO OUT connector.

The vectorscope displays the relevant information.

2 Adjust the chrominance signal gain level in PB LEVEL on the VIDEO SET menu.
For details on “PB LEVEL,” see “VIDEO SET menu” on page 86 (GB).

Chapter 5

Duplication and Audio Dubbing

Duplication (generating a work tape with the same time code)

If you copy a source tape using the DUP (duplicate) button on this unit, you can copy the time codes recorded on the source tape as they are. You can easily make a work tape having the same time codes as the source tape.
The duplicate function on this unit works only when using a source tape recorded in DVCAM format and with DV connections.
This unit functions as a recorder. To perform duplication on this unit, make sure to change REC MODE on the VTR SET menu to DVCAM first.

To set the duplicate mode

This unit has three duplicate modes.
Set DUPLICATE on the VTR SET menu to select a duplicate mode as follows.

AUTO📼CM (AUTO TAPE COPY WITH CASSETTE MEMORY COPY): The player and the recorder automatically rewind the tape to the beginning to start duplicating. The cassette memory is also duplicated.

AUTO📼 (AUTO TAPE COPY): The player and the recorder automatically rewind the tape to the beginning to start duplicating. The cassette memory is not duplicated.

MANUAL📼 (MANUAL TAPE COPY): The tape is duplicated from any location. The cassette memory is not duplicated.

Duplicating a tape

The duplicate procedure differs depending on the duplicate mode.

Notes

- If you operate the player while duplicating, the duplicate process may be interrupted and the tape may not be correctly duplicated. Do not operate the player while duplicating.
- You can duplicate a tape regardless of the DISPLAY SELECT selector setting, but the duplication screen will be displayed only when the DISPLAY SELECT selector has been set to DATA.

AUTO📼CM or AUTO📼 duplicate mode

1 Connect this unit and the player using an i.LINK cable (DV cable, not supplied). After turning on the power of this unit and the player, set the INPUT SELECT selector on this unit to DV.

2 Press the STOP button on this unit to stop the tape transport operation.

(Continued)

3 While holding the DUP button down, press the PLAY button on this unit.

This unit and the player will automatically rewind the tape to the beginning. This unit enters the duplicate-standby mode. The player enters the playback pause mode. Then the DUP and PLAY indicators on this unit light and the duplication starts.

If you press the PAUSE and PLAY buttons while holding the DUP button down in step 3

This unit and the player will automatically rewind the tape to the beginning. This unit enters the duplicate-standby mode. The player enters the playback pause mode. This unit does not start duplication until you press the PAUSE button.

To stop duplication

Press the STOP button on this unit.

Notes

- You cannot pause during a duplicate process.
- Before you start duplication, make sure that the player has finished loading the cassette.
- The duplication starts after the i.LINK communication is established so that the first part of the source tape is dropped on the copied tape.
- Set auto repeat to OFF when the player has an auto repeat function and set auto rewind to ON when the player has an auto rewind function.
- If the player has a still timer function, set the still timer to the longest time possible to ensure enough time for rewinding the tape to the beginning.
- If you have selected AUTO📼CM duplicate mode, the cassette memory will be duplicated after the tape has been duplicated. While the cassette memory is being duplicated, an indicator showing the progress of the duplication appears on the LCD monitor and on the MONITOR VIDEO output. Duplicating the cassette memory takes up to a few minutes depending on the amount of data.
  In the following cases, duplication of the cassette memory will be cancelled and the duplicate operation will be completed without duplicating the cassette memory.
  If, while the cassette memory is being duplicated;
  – you press the STOP button.
  – you turn off the power of this unit or of the player.
  – you eject the cassette.
  – you disconnect the DV cable.
  If the duplication of the cassette memory stops for some reason, the cassette memory on the duplicated tape will be completely erased.
- When both the recorder and the player are DSR-45/45Ps, set the REMOTE/LOCAL switch of the player as well as that of the recorder to LOCAL.
- If you operate the player while duplicating and the PLAYER UNCONTROLLABLE warning message appears and duplication is stopped, press the STOP button on this unit, then repeat the procedure from step **3**.
- Normally, the player and recorder rewind their tapes automatically after duplication. However, depending on the specifications, some players do not.

MANUAL📼 duplicate mode

1 Connect this unit and the player using an i.LINK cable (DV cable, not supplied). After turning on power of this unit and the player, set the INPUT SELECT selector on this unit to DV.

2 Locate the points where you want to start playback and recording.

3 Press the STOP button on this unit to stop the tape transport operation.

4 While holding the DUP button down, press the PLAY button on this unit.

This unit enters the duplicate-standby mode. The player enters the playback pause mode. Then the DUP and PLAY indicators on this unit light and duplication starts.

To adjust the point where duplication starts

In step **4**, while holding the DUP button down, press the PAUSE button and the PLAY button. This unit will not start duplication until you press the PAUSE button again. After confirming that the PLAYER display has changed to READY (flashing) on the LCD monitor, adjust the duplication start point using the player, then press the PAUSE button on this unit to start duplication.

To stop duplication

Press the STOP button on this unit.

Notes

- You cannot pause during a duplicate process.
- Before you start duplication, make sure that the player has finished loading the cassette.
- The duplication starts after the i.LINK communication is established so that the first part of the source tape is dropped on the copied tape. Play back the source tape from the preceding point.
- If the player has an auto repeat function, set the function to off.
- You may not be able to duplicate the first part of the source tape. Locate the recorded portion on the source tape, then start duplicating.
- If there is a blank portion on the tape, the first part of the recorded portion that follows may be dropped on the copied tape.
- If you start duplication at some midpoint in the tape, the search function may not work correctly on the copied tape or problems may occur when editing. It is recommended that you select AUTO📼CM or AUTO📼 for the duplicate mode.

Detecting a blank portion during duplication

If the unit detects a blank portion on the source tape during duplication, the skip function will automatically skip the blank portion, reducing the length of the recorded part of the tape. (This function is available only when the duplicate mode is AUTO📼CM or AUTO📼.)
The operations of the player and recorder (this unit) when a blank portion is detected are as follows:

Detected status on source tape	Player/Recorder (this unit) operation
Detects a blank portion	Player: Continues playing the tape. Recorder: Continues recording.
10 seconds after detection of a blank portion	Player: Continues playing the tape another 10 seconds and searches forward. Recorder: Stops.
Detects next recorded portion	Player: Rewinds the tape at about –2 times normal speed to the location immediately before the blank portion ends. Recorder: Remains stopped.
Returns to the location immediately before the blank portion ends	Player: After entering the playback pause mode, starts playing the tape. Recorder: After entering the recording pause mode, starts recording.

This unit performs the above operations automatically, reducing the blank portion by 10 or more seconds in duplicating a tape.

Notes

- If the duplicate mode has been set to MANUAL📼, this unit will not skip a blank portion even if detects one.
- Depending on the specifications, the skip function may not work on some players.
- When this unit resumes duplication, the first part of the recorded portion on the source tape may be dropped on the copied tape.
- A recorded portion of less than one minute between two blank portions may not be duplicated.

Warnings about duplication

If an error occurs during duplication, a STOP/CAUTION number and warning message will be displayed on the LCD monitor and the MONITOR VIDEO output screen. Except for STOP/CAUTION No. 60 (RECORDER: SHORTER TAPE), “Err” is displayed on the display window.

The following table lists these warnings and messages. If a warning message is displayed, check this table and take the appropriate action.

STOP/ CAUTION No.	Warning Message	Cause/Remedy
00	RECORDER: [DV IN] NOT SELECTED	The INPUT SELECT selector on the recorder (this unit) is not set to DV. → Set the INPUT SELECT selector to DV.
01	i.LINK CABLE: DISCONNECTED	The DV cable is not connected correctly. → Connect the DV cable correctly.
02	i.LINK CABLE: MULTI CONNECTION	There are multiple DV connections or the DV connection is looped. → You cannot connect multiple devices. Connect only one player to this unit.
03	i.LINK CABLE: BUS RESET	The DV cable has been unplugged and plugged in again. → Check the DV cable connection. Try to duplicate again.
10	PLAYER: RECORDING	The player is in the recording mode.
11	PLAYER: NO CASSETTE	There is no cassette in the player.
12	PLAYER: UNCONTROLLABLE	The player cannot be controlled, or the duplicate mode has been set to MANUAL📼 and the source tape has reached the end of the tape.
13	PLAYER: UNCONTROLLABLE	The player rejects control.
14	PLAYER: UNCONTROLLABLE	The player is disabled or is in a different mode than the recorder (this unit) has requested.
15	PLAYER: NOT DVCAM	The source tape is not recorded in the DVCAM format. → You can only duplicate a tape recorded in the DVCAM format.
16	PLAYER: UNCONTROLLABLE	The player has been manually operated or the player’s protection function cancelled the playback pause mode when the duplicate mode was set to AUTO📼CM or AUTO📼.
18	PLAYER: TAPE INFO. UNKNOWN	The information on the cassette in the player cannot be read. → If the cassette information is correct, clean the terminal on the cassette and insert the cassette again *(see page 99 (GB))* .
19[a]	PLAYER: CM ERROR	The player could not read the cassette memory during duplication. → If the cassette memory is correct, insert the cassette again.
21	PLAYER: EMERGENCY STOP	The player has detected self-diagnostics. → Refer to the instruction manual of the player.
22	PLAYER: DEW STOP	Moisture condensation has occurred in the player. → Refer to the instruction manual of the player.
35	RECORDER: DVCAM NOT SELECTED	REC MODE on the VTR SET menu of the recorder (this unit) is set to DV SP. → Set REC MODE to DVCAM.
37	RECORDER: NO CM	The cassette in the recorder (this unit) does not have cassette memory, but the recorder tried to duplicate the cassette memory. → Insert a cassette with cassette memory.
39	RECORDER: CM ERROR	The cassette memory data cannot be written in the cassette in the recorder (this unit). → Clean the terminals on the cassette *(see page 99 (GB)).*
40	RECORDER: STOP	The recorder (this unit) stopped while duplicating.

STOP/ CAUTION No.	Warning Message	Cause/Remedy
41	⏏	The recorder (this unit) detected self-diagnostics. → *For details on self-diagnostics, see page 100 (GB).*
42	▣⏏	Moisture condensation has occurred in the recorder (this unit). → If a cassette is in the unit, remove the cassette and power on and wait more than one hour.
43	RECORDER: HEAD CLOG	The recorder's (this unit) video heads are clogged. → Clean the video heads with the supplied cleaning cassette *(see page 98 (GB)).*
44	PLAYER: COPYRIGHT PROTECTED	A copyright protected signal is recorded on the cassette in the player. → You cannot copy a copyright protected signal.
50	RECORDER: SMALLER CM SIZE	The cassette memory in the recorder (this unit) is smaller than the cassette memory on the source tape. → Use a cassette that has larger cassette memory than the one on the source tape. (This error is displayed only when the duplicate mode has been set to AUTO▭CM.)
51 [b) c)]	RECORDER: SHORTER TAPE	The player's cassette tape length is longer than that of the recorder's (this unit) cassette and duplication has failed. → Use a cassette with a tape length that is longer than the one in the player.
60 [b) c)]	RECORDER: SHORTER TAPE	The player's cassette tape length is longer than that of the recorder's (this unit) cassette and there is a possibility that the duplication may fail. → Use a cassette with a tape length that is longer than the one in the player. (This message is displayed as a caution for 10 seconds after the start of duplication.)

a) If the player could not read the cassette memory when duplication started, this unit determines that the player's cassette does not have cassette memory and duplication of the cassette memory will be cancelled. The duplicate operation will be completed without duplicating the cassette memory and this warning message will not be displayed.

b) This unit detects tape length from the cassette memory data. Even if two tapes with the same length in the DVCAM format have been inserted in the player and the recorder (this unit), complete duplication may not be done due to the tape length error and this warning may not be displayed. As a result, if you search the cassette memory in the duplicated tape, the tape may not have a search point even though the cassette memory has the search point data.

c) If the cassette in the player does not have cassette memory, this warning is not displayed.

Note

If any warning message not listed in the table is displayed, consult your Sony dealer.

Audio Dubbing

You can record just sound on a recorded tape.
(Audio dubbing)

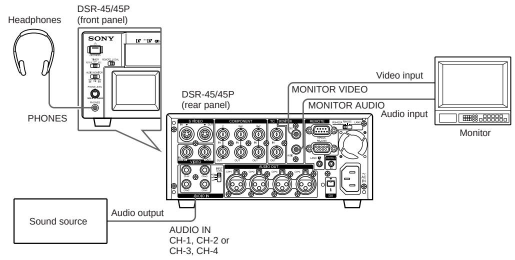
Note

You can dub the sound onto a DVCAM-formatted tape (recorded) in the 32 kHz audio mode (4-channel/12 bits). You cannot dub the sound on a tape in the 48 kHz audio mode (2-channel/16 bits). If the audio mode of the recorded tape is 32 kHz, you can dub the sound regardless of the AUDIO MODE setting on the AUDIO SET menu.

For details on "AUDIO MODE," see "AUDIO SET menu" on page 88 (GB).

Connection of external devices

The following shows an example of a basic connection for audio dubbing.



Selecting the input channels for audio dubbing

You can dub the sound in the following channel combinations: channels 1/2 or channels 3/4.
Set AUDIO DUB on the AUDIO SET menu to select the input channels for audio dubbing.

CH1,2: Selects the channel 1/2 combination.
CH3,4: Selects the channel 3/4 combination.
OFF: Disables audio dubbing.

Note

You cannot dub sound in the following channel combinations:

- Channels 1 to 4 simultaneously
- Only one channel
- Three channels simultaneously (excluding one channel)
- Channel 1/3, channel 2/4, channel 1/4 and channel 2/3 combinations

Dubbing sound

1. Connect the unit and the sound source using a phono jack cable (not supplied).
2. Set the INPUT SELECT selector to a setting other than DV.
3. Switch the INPUT LEVEL selector to select the audio input signal level (–10, –2 or +4).
4. Play back the tape inserted in this unit.
5. At the point you want to start dubbing, press the PAUSE button to turn the unit to the playback pause mode.
6. While holding the AUDIO DUB button down, press the PLAY button to turn the unit to the audio dubbing pause mode.

   The AUDIO DUB indicator on this unit lights.
7. Set the AUDIO INPUT switch to AUTO or MANU.
8. Adjust the recording level by turning the AUDIO REC LEVEL control knobs.

   You can adjust the recording level with the AUDIO REC LEVEL control knobs if you have selected MANU in step **7**. While looking at the audio level meters on the LCD monitor, turn the AUDIO REC LEVEL control knobs and adjust the recording level. Adjust the audio recording level so that the recording level does not exceed 0 dB when the audio signal is at its maximum. If the recording level exceeds 0 dB, the sound will be distorted.
9. Press the PAUSE button.

   The PAUSE indicator goes off and audio dubbing starts.

To pause audio dubbing

Press the PAUSE button.
Pressing the PAUSE button again resumes audio dubbing.

To stop audio dubbing

Press the STOP button.

To monitor the sound you want

Set the AUDIO MONITOR selector as follows:

CH-1/2: You can listen to sound on channels 1/2 on the tape or the sound to be dubbed.
CH-3/4: You can listen to sound on channels 3/4 on the tape or the sound to be dubbed.
MIX: You can listen to the sound on the tape and the dubbed sound.

Notes

- You can monitor the sound on the tape while dubbing the sound. However, there are some delays between the sound being recorded and the sound being played. When you play back the tape after audio dubbing, you might hear the dubbed sound later than the sound monitored during audio dubbing.
- You cannot dub sounds onto a blank portion of the tape.

Chapter 6

Adjusting and Setting Through Menus

Operating the Menus

The unit allows you to set various parameters in the menus. Before you start using the unit, set the internal clock in CLOCK SET on the OTHERS menu. Except for clock setting, you can use all other factory-set default parameters but change them as needed.

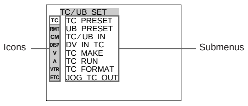
Notes

- If the internal backup battery is exhausted, the time set in the internal clock and the time code of the FREE RUN setting will be initialized. The internal backup battery is fully charged if you connect the power to the unit for about 8 hours. A fully charged internal battery can run for about two weeks.
- Do not pull out the plug of the power cord from an AC outlet or the unit while adjusting the menu or the brightness of the LCD monitor. Otherwise, the settings of the menu may be changed accidentally.

Displaying the menu

1. Set the CHARACTER DISPLAY (LCD) selector to ON or ON (BLACK BACK).
2. Set the DISPLAY SELECT selector to MENU.

   The menu is superimposed on the LCD monitor.



Changing the menu settings

1 Pressing the ⇧/⇩ buttons, select the menu icon you want to change, then press the EXEC button.

2 Pressing the ⇧/⇩ buttons, select the submenu you want to change, then press the EXEC button.

3 Pressing the ⇧/⇩ buttons, change the setting.

4 Press the EXEC button to return to the submenu.

5 Repeat steps **1** to **4**, as needed.

To return to step 1

Press the ⇧/⇩ buttons to select ⮐RETURN, then press the EXEC button.

Menu Organization

The menu of this unit consists of the following menus and submenus.

- **TC/UB SET**
  - TC PRESET *(page 78 (GB))*
  - UB PRESET *(page 78 (GB))*
  - TC/UB IN *(page 78 (GB))*
  - DV IN TC *(page 79 (GB))*
  - TC MAKE *(page 79 (GB))*
  - TC RUN *(page 79 (GB))*
  - TC FORMAT *(page 79 (GB))* a)
  - JOG TC OUT *(page 80 (GB))*
- **REMOTE**
  - LOCAL ENBL *(page 80 (GB))*
  - PREROLL *(page 80 (GB))*
  - POST CUEUP *(page 80 (GB))*
  - STILL DLY *(page 80 (GB))*
  - 232C RATE *(page 80 (GB))*
- **CM SET**
  - CM SEARCH *(page 81 (GB))*
  - TITLE DISP *(page 81 (GB))*
  - LABEL DISP *(page 81 (GB))*
  - TAPE LABEL *(page 82 (GB))*
  - ITEM ERASE *(page 83 (GB))*
  - ERASE ALL *(page 84 (GB))*
- **DISPLAY SET**
  - DATA CODE *(page 85 (GB))*
  - EE/PB SEL *(page 85 (GB))*
  - LTR SIZE *(page 85 (GB))*
  - COLOR BAR *(page 85 (GB))* b)
  - DATE DISP *(page 86 (GB))*
  - TIME DISP *(page 86 (GB))*
- **VIDEO SET**
  - PB YNR *(page 86 (GB))*
  - PB CNR *(page 86 (GB))*
  - PB LEVEL *(page 87 (GB))*
  - EXT SYNC *(page 87 (GB))*
  - H PHASE *(page 87 (GB))*
  - H PHASE F *(page 87 (GB))*
  - SC PHASE *(page 88 (GB))*
  - SC PHASE F *(page 88 (GB))*
- **AUDIO SET**
  - AUDIO MODE *(page 88 (GB))*
  - AUDIO DUB *(page 88 (GB))*
  - JOG AUDIO *(page 88 (GB))*
  - REF LEVEL *(page 89 (GB))*
  - AGC CH1,2 *(page 89 (GB))*
  - AGC CH3,4 *(page 89 (GB))*
  - LIMITER *(page 89 (GB))*
- **VTR SET**
  - REC MODE *(page 90 (GB))*
  - AUTO INDEX *(page 90 (GB))*
  - STILL PICT *(page 90 (GB))*
  - FF/REW SPD *(page 90 (GB))*
  - DUPLICATE *(page 91 (GB))*
  - DV EE OUT *(page 91 (GB))*
  - STILL TIME *(page 91 (GB))*
  - FROM STILL *(page 91 (GB))*
- **OTHERS**
  - COMMANDER *(page 92 (GB))*
  - AC ON MODE *(page 92 (GB))*
  - AUTO STBY *(page 92 (GB))*
  - BEEP *(page 92 (GB))*
  - LCD BRIGHT *(page 92 (GB))*
  - LCD COLOR *(page 92 (GB))* c)
  - CLOCK SET *(page 92 (GB))*
  - HRS METER *(page 92 (GB))*

a) DSR-45 only
b) COLOUR BAR for DSR-45P
c) LCD COLOUR for DSR-45P

Menu Contents

Initial settings are indicated with rectangles.

TC/UB SET menu

Note

All items other than JOG TC OUT can be set only when you record in DVCAM format.

Icon/Menu	Submenu (page)	Setting
TC TC/UB SET	TC PRESET *(page 58 (GB))*	Resets/Sets the time code value. **RESET:** Resets the time code value to 00:00:00:00. **PRESET:** Sets the time code value. **RETURN** **:** Returns to the TC/UB SET menu without changing the time code value. **Note** To set the initial time code value, you need to set TC MAKE to PRESET first. If TC MAKE has been set to REGEN, you cannot change the time code using this item.
	UB PRESET *(page 59 (GB))*	Resets/Sets the user bits value. **RESET:** Resets the user bits value to 00 00 00 00. **PRESET:** Sets the user bits value. (You can set the user bits as eight-digit hexadecimal values (0 to 9, A to F) (base 16) to have the date, time, scene number, and other information inserted into the user bits.) **RETURN** **:** Returns to the TC/UB SET menu without changing the user bits value.
	TC/UB IN *(page 60 (GB))*	Selects the time code and user bits to record on the tape. **INTERNAL** **:** Uses the internal time code/user bits. **TC&UB EXT:** Uses external time code/user bits. **TC EXT:** Uses an external time code and internal user bits. **UB EXT:** Uses the internal time code and external user bits. **Notes** • The time code output from this unit has some restrictions. For details, see pages 64 (GB), 65 (GB). • Press the EXEC button to change the setting of this item. This will also be carried out the moment you switch the position of the DISPLAY SELECT selector to DATA or AUDIO.

Icon/Menu	Submenu (page)	Setting
TC TC/UB SET	DV IN TC *(page 60 (GB))*	Selects whether to record internal time code or external time code while the unit records the signals input via the DV jack in DVCAM format. **INTERNAL** **:** Records the time code generated by the internal time code generator. (The value of the time code or user bits depends on the settings of other menu items, such as TC PRESET, UB PRESET, or TC MAKE.) **EXTERNAL:** Records the time code with video and audio signals input via the DV jack. **Notes** • When you set REC MODE on the VTR SET menu to DV SP, this item cannot be used. Even if this item is set to EXTERNAL, when you set REC MODE on the VTR SET menu to DV SP, the setting becomes invalid and the unit records the internal time code. • When this item is set to EXTERNAL, the INPUT SELECT selector on the front panel is set to DV, and no signal is input via the DV jack, or the software of the editing controller does not output a time code, if you start recording, bars (– –:– –:– –:– –) are recorded as time code. At the point that the input of a signal begins, the time code of that signal will be recorded. • When this item is set to EXTERNAL, if you input time code to the DV jack that is not continuous or does not advance correctly, the value of the recorded or displayed time code may not be equal to the actual value of the input one. If you use a tape with this problem, you may not be able to perform search or edit, depending on the devices you use.
	TC MAKE *(page 61 (GB))*	Selects the time code when you start recording. **REGEN** **:** The time code value is set to continuous time code from the one already recorded on the tape. If no time code is recorded on the tape, it starts from 00:00:00:00. **PRESET:** The time code starts from the value set in TC PRESET on the TC/UB SET menu.
	TC RUN *(page 61 (GB))*	Selects the advancement mode (counting up). **REC RUN** **:** Time code value advances only while recording. **FREE RUN:** Time code value advances even when the unit is not recording. (This mode is used to set the current time as the initial time code value, or to synchronize the internal time code to an external time code.) **Notes** • If you set the advancement mode to FREE RUN, the time code will be updated by the internal clock when the power is off. Therefore, when you turn on the unit again, the time code may have been delayed or advanced somewhat. • If the internal backup battery is exhausted, the time code of the FREE RUN setting is initialized.
	TC FORMAT *(page 61 (GB))*	Selects the frame mode. **AUTO** **:** Automatically sets the frame mode in accordance with the inserted cassette. (If nothing is recorded on the tape, the mode is set to the non-drop frame mode. If the unit cannot read the frame mode correctly in the tape, the unit will use the frame mode that was set in the last position it was able to read correctly on the tape. If you remove the cassette, the mode of the last position it was able to read correctly is cleared and the mode is set to the non-drop frame mode. If TC MAKE is set to PRESET, the mode is also set to the non-drop frame mode.) **DF:** Selects the drop frame mode. **NDF:** Selects the non-drop frame mode. **Notes** • This menu is displayed only for the DSR-45. • Regardless of this item setting, the frame mode is set to drop frame when you record in DV format.

Icon/Menu	Submenu (page)	Setting
TC TC/UB SET	JOG TC OUT *(page 61 (GB))*	Controls the time code output from the TC OUT connector when the tape is played at a speed other than normal. **OFF** **:** Does not output the time code. **ON:** Outputs the time code. **Note** Continuous time code is output only when the tape is played at a normal speed. When the unit is in the search mode, discontinuous time code is output.

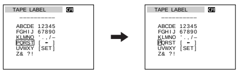
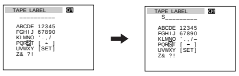
REMOTE menu

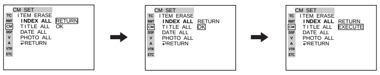
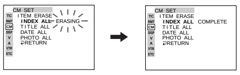
Icon/Menu	Submenu (page)	Setting
RMT REMOTE	LOCAL ENBL *(page 12 (GB))*	Restricts the functions of the buttons on the front panel, the Remote Commander, and the Remote Control Unit (not supplied) connected to the CONTROL S IN jack, when the REMOTE/LOCAL switch is set to REMOTE. **NO KEY** **:** Disables all buttons on the devices described above. **EJECT:** Disables all buttons except EJECT on the devices described above. **STOP&EJECT:** Disables all buttons except EJECT and STOP on the devices described above. **ALL KEYS:** Enables all buttons on the devices described above. **Notes** • Even if the REMOTE/LOCAL switch is set to REMOTE, the Remote Commander functions depend on the setting of this item. If you want to disable the Remote Commander, set COMMANDER on the OTHERS menu to CONTROL S. • Press the EXEC button to change the setting of this item. This will also be carried out the moment you switch the position of the DISPLAY SELECT selector to DATA or AUDIO. • While the REMOTE/LOCAL switch is set to REMOTE, if you change this item from ALL KEYS to any other setting, the setting is activated at that instant and the ⇧, ⇩, and EXEC buttons, which are used to adjust the menus, are disabled. To enable those buttons again, set the REMOTE/LOCAL switch to LOCAL.
	PREROLL	Sets the duration of the preroll time. (only for an RS-422A connection) **3 SEC:** Three seconds **5 SEC:** Five seconds **7 SEC** **:** Seven seconds **10 SEC:** 10 seconds **Notes** • Depending on the types of editing controller used, the unit may take the preroll time set by the editing controller, ignoring setting of this item. • On the editing controller, set the preroll time to five seconds or longer.
	POST CUEUP	Selects the information which the unit sends to an editing controller to let it know the state of the unit when the tape reaches a searched for point. (only for an RS-422A connection) **STOP** **:** Informs the editing controller that the unit is in the stop mode. **STILL:** Informs the editing controller that the unit is in the playback pause mode.
	STILL DLY	Playback still delay can be set between 0 and 10 frames by 11 steps. You can set the delay which the unit turns to playback mode from still mode. (only for an RS-422A connection) **Note** The default is 0 frame.

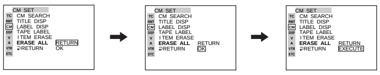
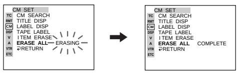
Icon/Menu	Submenu (page)	Setting
RMT REMOTE	232C RATE	Selects the baud rate via the RS-232C connector. **9600 :** 9600 bps **19200:** 19200 bps **Note** For editing, if you intend to use this unit as a player and the FXE-120/120P or FXE-100/100P as an editing controller, set the baud rate of both devices to 19200 bps.

CM SET menu

Icon/Menu	Submenu (page)	Setting
CM CM SET	CM SEARCH	Selects the mode used to search scenes. **ON :** Searches scenes using the cassette memory. (If the cassette does not have cassette memory, the search for the scenes can be done using the search signals on the tape.) **OFF:** Always searches scenes using the search signals on the tape.
	TITLE DISP	Selects whether or not to display the title. **ON :** Displays the title. **OFF:** Hides the title. **Notes** • The title input with the camera or external device is displayed. You cannot enter a title using this unit. • The unit cannot display a font that the unit does not have. • The title is displayed only on the LCD monitor or MONITOR VIDEO output. • The title is only displayed if you have set the DISPLAY SELECT selector to DATA.
	LABEL DISP	Selects whether or not to display the tape label. **ON :** Displays the tape label. **OFF:** Hides the tape label. **Notes** • The tape label is displayed only on the LCD monitor or MONITOR VIDEO output. • The tape label is only displayed if you have set the DISPLAY SELECT selector to DATA. • If the tape label has been made with another VCR or camcorder, this unit cannot display a tape label that includes a font that the unit does not have.

Icon/Menu	Submenu (page)	Setting
CM CM SET	TAPE LABEL	Makes a tape label. (You can enter up to 10 characters on a tape label.) If you select this item, one of the following symbols appears. If no cassette is loaded, nothing is displayed. **CM:** Cassette with cassette memory **CM:** Cassette without cassette memory You can make a tape label as follows: **1** On the TAPE LABEL screen, select a line that has the alphabet character you want by pressing the ⇧/⇩ buttons and the EXEC button. (The cursor moves to the first character of the line.)  TAPE LABEL ABCDE 12345 FGHIJ 67890 KLMNO ' . , / – PQRST [←] UVWXY [SET] Z& ?! **2** Select a character by pressing the ⇧/⇩ buttons and the EXEC button. (The selected character is entered. To erase a character, select [←]; the last character is erased.)  TAPE LABEL S ABCDE 12345 FGHIJ 67890 KLMNO ' . , / – PQRST [←] UVWXY [SET] Z& ?! **3** Repeat steps **1** and **2**. After entering all characters for the tape label, select [SET]. **Note** The unit cannot display the TAPE LABEL screen in the following cases: • The unit does not have a cassette inserted or the tape is being unloaded. • The cassette does not have cassette memory. • The cassette memory is full of data other than the tape label data. • The cassette is write-protected. • The tape is being recorded. • The tape is being duplicated. • The cassette memory is being used.

Icon/Menu	Submenu (page)	Setting
CM CM SET	ITEM ERASE	Erase a cassette memory item. If you select this item, one of the following symbols appears. If no cassette is loaded, nothing is displayed. **CM:** Cassette with cassette memory **CM:** Cassette without cassette memory The available items are as follows: **INDEX ALL:** Erases the index data. **TITLE ALL:** Erases the title data. **DATE ALL:** Erases the date data. **PHOTO ALL:** Erases the photo data. You can erase an item as follows: **1** Select an item to erase by pressing the ⇧/⇩ buttons and the EXEC button. **2** To erase the item, select OK, otherwise select RETURN. (If you select OK, the unit will check again to see if you really want to erase the item.)  CM SET TC RMT CM DISP V A VTR ETC ITEM ERASE INDEX ALL TITLE ALL DATE ALL PHOTO ALL RETURN RETURN OK EXECUTE **3** To erase the item, select EXECUTE, otherwise select RETURN. (If you select EXECUTE, the ERASING message will flash, and the unit will start erasing the item in the cassette memory. While the ERASING message is flashing, you cannot use the ⇧/⇩ buttons or the EXEC button. After the item has been erased, the COMPLETE message appears. Press the ⇧/⇩ buttons or the EXEC button to erase the COMPLETE message.)  CM SET ITEM ERASE INDEX ALL TITLE ALL DATE ALL PHOTO ALL RETURN ERASING COMPLETE **Notes** • You cannot make a title, mark the date for date search, or record in the photo mode. • You cannot erase an item in the cassette memory in the following cases: – The unit does not have a cassette inserted or the tape is being unloaded. – The cassette does not have cassette memory. – The cassette is write-protected. – The tape is being recorded. – The tape is being duplicated.

Icon/Menu	Submenu (page)	Setting
CM CM SET	ERASE ALL	Erases all the items in the cassette memory. If you select this item, one of the following symbols appears. If no cassette is loaded, nothing is displayed. **CM:** Tape with cassette memory **CM:** Tape without cassette memory Erase all items in the cassette memory as follows: **1** To erase all items, select OK, otherwise select RETURN. (If you select OK, the unit will check again to see if you really want to erase all items.)  CM SET TC RMT CM DISP V A VTR ETC CM SEARCH TITLE DISP LABEL DISP TAPE LABEL ITEM ERASE ERASE ALL RETURN RETURN OK EXECUTE **2** To erase all items, select EXECUTE, otherwise select RETURN. (If you select EXECUTE, the ERASING message will flash, and the unit starts erasing all items in the cassette memory. While the ERASING message is flashing, you cannot use the ⇧/⇩ buttons or the EXEC button. After all items have been erased, the COMPLETE message appears. Press the ⇧/⇩ buttons or the EXEC button to erase the COMPLETE message.)  CM SET CM SEARCH TITLE DISP LABEL DISP TAPE LABEL ITEM ERASE ERASE ALL RETURN ERASING COMPLETE **Note** You cannot erase all the items in the cassette memory in the following cases: • The unit does not have a cassette inserted or the tape is being unloaded. • The cassette does not have cassette memory. • The cassette is write-protected. • The tape is being recorded. • The tape is being duplicated.

DISPLAY SET menu

<table>
<tr><th>Icon/Menu</th><th>Submenu (page)</th><th>Setting</th></tr>
<tr><td rowspan="4">DISP DISPLAY SET</td><td>DATA CODE
(page 36 (GB))</td><td>Selects whether or not to display the data codes on the LCD monitor and the MONITOR VIDEO output.
OFF : Does not display the data codes.
DATE: Displays the date when recorded.
CAMERA: Displays the camera data.</td></tr>
<tr><td>EE/PB SEL
(page 17 (GB))</td><td>Sets the stop, fast-forward and rewind modes.
EE : Outputs EE pictures (sound, time code).
PB: Mutes the image and sound.
Notes
• Even if EXT SYNC on the VIDEO SET menu is set to ON, the line-outs (VIDEO OUT, COMPONENT OUT, S VIDEO OUT) in the EE mode are delayed from those of the input signals as follows:
– delayed for two lines when signals are input via the VIDEO IN REF.IN connector.
– delayed for one line when signals are input via the S VIDEO IN or COMPONENT IN connector.
• If this item is set to PB, the output from the unit will be as follows when you press any of the REC, DUP, or AUDIO DUB buttons separately when the unit is stopped (unless the cassette has been write-protected).
<table>
<tr><th></th><th>Image</th><th>Sound</th><th>Time code</th></tr>
<tr><td>REC button</td><td>EE picture of the input image</td><td>EE sound of the input sound</td><td rowspan="4">(See page 63 (GB))</td></tr>
<tr><td>DUP button</td><td>Image input to the DV jack</td><td>Sound input to the DV jack</td></tr>
<tr><td>AUDIO DUB button</td><td>Mute screen (black)</td><td>EE sound of the input sound</td></tr>
<tr><td>No button is pressed</td><td>Mute screen (black)</td><td>Mute (no sound)</td></tr>
</table></td></tr>
<tr><td>LTR SIZE</td><td>Changes the font size of the menu line at the cursor.
NORMAL : Normal size
2×: Double height size</td></tr>
<tr><td>COLOR BAR (for DSR-45) / COLOUR BAR (for DSR-45P)</td><td>Displays/hides the color bars.
OFF : Does not display the color bars.
ON: Displays the color bars.
Notes
• You cannot display the color bars while the unit is playing the tape or when the INPUT SELECT selector is set to DV.
• The color bars are displayed only on the LCD monitor or MONITOR VIDEO output.
• If you record when the color bars are displayed, the color bars will also be recorded on the tape.
• You cannot adjust the MONITOR VIDEO output. Do not use the color bars output from the MONITOR VIDEO jack as a reference signal.
• The reference sound signals are not output even if this item is set to ON.
• This item will be automatically set to OFF if you set the INPUT SELECT selector to DV or you operate the unit to play back a tape.</td></tr>
</table>

Icon/Menu	Submenu (page)	Setting
DISP DISPLAY SET	DATE DISP	Selects the form of the date displayed on the search screen or of the data codes and so on. **Y/M/D:** Displays YY/MM/DD (year/month/day). **M/D/Y:** Displays MM/DD/YY (month/day/year). **D/M/Y:** Displays DD/MM/YY (day/month/year). **Note** The default is M/D/Y for the DSR-45; and D/M/Y for the DSR-45P.
	TIME DISP	Selects the form of the time displayed on the search screen or of the data codes and so on. **24H** **:** Displays 24-hour time. **12H:** Displays 12-hour time. **Note** The counter of this unit operates only on a 12-hour cycle. Even if you set this item to 24H, the counter value is displayed on a 12-hour cycle.

VIDEO SET menu

Note

To perform the adjustment in H PHASE, H PHASE F, SC PHASE, or SC PHASE F, you must set EXT SYNC to ON and input the reference video signals to the VIDEO IN REF.IN connector.

Icon/Menu	Submenu (page)	Setting
V VIDEO SET	PB YNR	Switches the noise reduction level for the luminance signals when a tape is played. **OFF** **:** No noise reduction **LOW:** Low noise reduction **HIGH:** High noise reduction **Notes** • When you use noise reduction, there may be an afterimage depending on the condition of the picture. • The setting of this item does not affect a signal output via the DV jack.
	PB CNR	Switches the noise reduction level for the chrominance signals when a tape is played. **OFF** **:** No noise reduction **LOW:** Low noise reduction **HIGH:** High noise reduction **Notes** • When you use noise reduction, there may be an afterimage depending on the condition of the picture. • The setting of this item does not affect a signal output via the DV jack.

Icon/Menu	Submenu (page)	Setting
V VIDEO SET	PB LEVEL *(page 68 (GB))*	Adjusts the output video signal levels. (This is available only when the mode is playback, playback pause, slow playback, cue, or review.) **SETUP:** Switches the luminance signal setup level (0% or 7.5%). (This item is only for the DSR-45. The setup level for the DSR-45P is fixed to 0%.) **Y LEVEL:** Adjusts the Y signal level of the component signals. (If you change this, the Y signal level of the composite video and S VIDEO will also be changed.) **R-Y LEVEL:** Adjusts the R-Y signal level of the component signals. (If you change this, the chrominance level of the composite video and S VIDEO will also be changed.) **B-Y LEVEL:** Adjusts the B-Y signal level of the component signals. (If you change this, the chrominance level of the composite video and S VIDEO will also be changed.) **CHROMA:** Adjusts the chrominance level in the composite signals. **Notes** • You can adjust the video levels only while playing the tape. • Adjust the video levels by looking at the bars (except SETUP). (The triangles under the bars are displayed in green when the settings are set to the factory preset values.) • The SETUP default is 0%. Other defaults are their center values. • The output video signals can be adjusted only for VIDEO OUT, COMPONENT OUT, or S VIDEO OUT. • Set SETUP to 7.5% only if the tape has been recorded at 0% and you want to play back the tape at 7.5%. If you play back a 7.5% tape at the 7.5% setting, the tape will not be played at the proper brightness. If you set SETUP at 0% and if you play back a 7.5% tape, the tape will be played at 7.5%. (You cannot play the tape at 0%.)
	EXT SYNC	Switches the externally synchronized playback setting. **OFF** **:** No external synchronization **ON:** External synchronization **Notes** • It may take three or more seconds until a stable image is output in the externally-synchronized playback mode. • In the externally-synchronized playback mode, jitter may appear on the MONITOR VIDEO output or on the LCD monitor image. Use the VIDEO OUT connector to output an externally-synchronized image. Set this item to OFF when you use the MONITOR VIDEO output.
	H PHASE *(page 66 (GB))*	Roughly adjusts the sync phase in the externally-synchronized playback mode. Press the ⇧/⇩ buttons to move the bar and press the EXEC button to select. (The triangle under the bar is displayed in green when the setting is set to the factory preset value.) **Notes** • You can adjust this item only in the externally-synchronized playback mode. • If you change this item, the H PHASE F value will be set to the factory preset value.
	H PHASE F *(page 66 (GB))*	Finely adjusts the sync phase in the externally-synchronized playback mode. Press the ⇧/⇩ buttons to move the bar and press the EXEC button to select. (The triangle under the bar is displayed in green when the setting is set to the factory preset value.) **Notes** • You can adjust this item only in the externally-synchronized playback mode. • If you change the H PHASE value, this item is set to the factory preset value.

(Continued)

Icon/Menu	Submenu (page)	Setting
V VIDEO SET	SC PHASE *(page 66 (GB))*	Reverses the subcarrier phase in the externally-synchronized playback mode. **0 DEG** **:** The subcarrier phase is not reversed. **180 DEG:** The subcarrier phase is reversed. **Note** You can adjust this item only in the externally-synchronized playback mode.
	SC PHASE F *(page 66 (GB))*	Finely adjusts the subcarrier phase in the externally-synchronized playback mode. Press the ⇧/⇩ buttons to move the bar and press the EXEC button to select. (The triangle under the bar is displayed in green when the setting is set to the factory preset value.) **Note** You can adjust this item only in the externally-synchronized playback mode.

AUDIO SET menu

Icon/Menu	Submenu (page)	Setting
A AUDIO SET	AUDIO MODE *(page 74 (GB))*	Selects the audio mode. **FS32K** **:** Switches the audio mode to the four channel mode (12-bit mode). **FS48K:** Switches the audio mode to the two channel stereo mode (16-bit mode). (This setting records the sound in all audio ranges, providing a high-quality sound recording.) **Notes** • When signals are input via the DV jack, the audio mode of the signals to be recorded is the same as that of the input signals. The setting of this item is ignored. • You cannot change the setting of this item during recording. • Noise may occur at the instant you switch the audio mode.
	AUDIO DUB *(page 74 (GB))*	Selects the input channel for audio dubbing. **CH1,2:** Selects channels 1 and 2. **CH3,4** **:** Selects channels 3 and 4. **OFF:** Disables audio dubbing. **Note** You cannot change the setting of this item while dubbing the sound.
	JOG AUDIO	Turns sound output on/off when the tape is played at a speed other than normal. **OFF** **:** Does not output the sound when playing a tape at a speed other than normal. **ON:** Outputs the sound when playing a tape at a speed other than normal. **Note** Even if you have set this item to ON, the sound may not be output or interrupted depending on the tape format (DVCAM/DV) or tape conditions.

Icon/Menu	Submenu (page)	Setting
A AUDIO SET	REF LEVEL *(page 29 (GB))*	Switches the center levels of the audio level meters displayed on the fine audio levels screen. **–12dB:** Sets the level to –12 dB. **–18dB:** Sets the level to –18 dB. **–20dB:** Sets the level to –20 dB. **Notes** • The default is –20 dB for DSR-45; –18 dB for DSR-45P. • The standard output level of the AUDIO OUT connectors is +4 dBu. This is equivalent to –20 dB for the DSR-45, or –18 dB for the DSR-45P from full bit (maximum audio level). This level is fixed and does not change even if you change this item setting. • Changing this level does not change the audio gain of this unit. Turn the AUDIO REC LEVEL control knobs to adjust the recording level accordingly.
	AGC CH1,2 *(page 29 (GB))*	Links/separates the AGC (Auto Gain Control) in channels 1 and 2. **SEPARATE :** AGC is not linked. (Channels 1 and 2 sound gains are separated.) **LINKED:** AGC is linked. (Channels 1 and 2 sound gains are linked as a pair.) **Notes** • This setting is disabled when inputting signals from the DV jack. • The LINKED setting changes to enabled after you set the AUDIO INPUT switch on the front panel to AUTO.
	AGC CH3, 4 *(page 29 (GB))*	Links/separates the AGC (Auto Gain Control) in channels 3 and 4. **SEPARATE :** AGC is not linked. (Channels 3 and 4 sound gains are separated.) **LINKED:** AGC is linked. (Channels 3 and 4 sound gains are linked as a pair.) **Notes** • This setting is disabled when inputting signals from the DV jack. • The LINKED setting changes to enabled after you set the AUDIO INPUT switch on the front panel to AUTO.
	LIMITER	Turns the limiter on/off. **OFF :** No limiter **ON:** Uses the limiter. **Notes** • This setting is disabled when inputting signals from the DV jack. • This setting is available only when you have set the AUDIO INPUT switch on the front panel to MANU. • Make sure to set the INPUT LEVEL selector on the rear panel correctly. Even if you have set this item to ON, the limiter will not work for a sound that exceeds the dynamic range of the input amplifier.

VTR SET menu

Icon/Menu	Submenu (page)	Setting
VTR VTR SET	REC MODE	Switches the recording mode between DVCAM and DV (SP mode only). When you play back a tape, the DVCAM/DV setting will be automatically switched; you do not need to use this item. **DVCAM :** Records in DVCAM format. **DV SP:** Records in DV format (SP mode). **Notes** • The unit can record only in the DVCAM format or in the SP mode of the DV format. • You cannot change the setting while recording. • It is recommended that you record in the DVCAM format. There are some limitations with respect to DV recording depending on machine specifications and the consumer DV format as follows: – The head system is optimized for DVCAM recording. A DV recording overwrites the last track just before the beginning of the recording. As a result, at the border of these two recorded portions, picture and sound may be distorted. – The picture and sound will be recorded unsynchronized. (unlock mode) – The time code is fixed to the drop frame mode. (only for DSR-45) – The DV IN TC setting on the TC/UB SET menu becomes invalid. The unit records internal time code. • If you dub a consumer DV tape from the DV jack on this unit, keep the following in mind: – Set REC MODE to DV SP. If REC MODE has been set to DVCAM, a tape with an invalid format (recording speed: DVCAM, sound: unsynchronized, unlock mode) will be made. (The unit cannot convert unlock mode sound to lock mode sound.) – If you edit a tape with an invalid format in the DSR-70/70P, DSR-70A/70AP, DSR-80/80P, DSR-85/85P, DSR-1800/1800P, DSR-2000/2000P, etc., there may be some restrictions. *For details on DVCAM/DV format compatibility, see “Compatibility of DVCAM and DV Format” on page 101 (GB).*
	AUTO INDEX *(page 44 (GB))*	Selects whether or not the unit automatically marks an index signal when the unit in the stop mode starts recording. **ON :** Marks an index signal at the beginning of the recording. **OFF:** Does not mark an index signal at the beginning of the recording.
	STILL PICT	Switches the image displayed in the still mode. **AUTO :** Displays an optimized image according to the movement in the image. **FIELD:** Displays a field image. **FRAME:** Displays a frame image. **Note** If you select FIELD, the image of field 2 is displayed.
	FF/REW SPD	Selects the tape transport mode in fast-forward and rewind. **FF/REW :** Fast-forwards or rewinds the tape at maximum speed without displaying the picture. **SHUTTLEMAX:** Fast-forwards or rewinds the tape at maximum speed (DVCAM: about 14 times normal speed for the DSR-45; about 17 times normal speed for the DSR-45P) while displaying the picture. However, if you use a tape recorded in the SP mode of the DV format, the maximum tape speed will be about 24 times normal speed, on both models. **Note** If you intend to edit using an RS-422A connection, set this item to SHUTTLEMAX.

Icon/Menu	Submenu (page)	Setting
VTR VTR SET	DUPLICATE *(page 69 (GB))*	Switches the duplicate mode. **AUTO⌧C/I :** Starts duplication after rewinding the tape to the beginning in the player and recorder. (The cassette memory is also duplicated.) **AUTO⌧:** Starts duplication after rewinding the tape to the beginning in the player and recorder. (The cassette memory is not duplicated.) **MANUAL⌧:** Duplicates the tape from any point. (The cassette memory is not duplicated.) **Note** You cannot change the setting of this item during duplication.
	DV EE OUT *(page 42 (GB))*	Selects the output from the DV jack in the EE mode. **OFF :** Outputs only the playback video and audio signals from the DV jack. **ON:** Outputs the selected analog input signals from the DV jack. **Note** When you connect a computer to the DV jack, depending on your computer software, the selected analog input signals may be output to the computer even if this item is set to OFF.
	STILL TIME	Selects the length of time that elapses before switching to the tape protection mode from the still mode. **30 SEC :** 30 seconds **1 MIN:** 1 minute **2 MIN:** 2 minutes **3 MIN:** 3 minutes **5 MIN:** 5 minutes **Notes** • If the unit is left in playback pause mode for a long time, the tape or the video heads may be damaged or the video heads may become clogged. Select the shortest time possible —particularly when using a Mini-DV cassette that is longer than 60 minutes, select 30 SEC or 1 MIN. • If you change the setting of this item while the unit is in the playback pause mode, the first tape protection mode change uses the time setting from before the settings were changed. From the second tape protection mode change, the new time setting is used.
	FROM STILL	Selects the tape protection mode to which the unit switches after the still mode continues for the time interval set in STILL TIME. **STOP :** Stops the tape. **STEP FWD:** Forwards one frame.

OTHERS menu

Icon/Menu	Submenu (page)	Setting
ETC OTHERS	COMMANDER *(page 26 (GB))*	Selects the control device. **WIRELESS :** Enables the control of the Remote Commander. **CONTROL S:** Enables the control of the Remote Control Unit (DSRM-20, not supplied) connected to the CONTROL S IN jack. (The Remote Commander is disabled.) **Note** The unit accepts signals from any Sony Remote Commander whose command mode is set to VTR4, not only the supplied one. If you want to disable the control from any Remote Commander, set this item to CONTROL S.
	AC ON MODE	Switches the state into which the unit goes when the unit is connected to an AC outlet. **STBY :** Makes the unit go into the standby mode. **POWER ON:** Turns the unit on.
	AUTO STBY	Selects whether the unit goes into the standby mode or not, if the unit has been in the stop mode and no key operations have been attempted for more than one hour. **DISABLE :** Leaves the unit in the stop mode. **ENABLE:** Makes the unit go into the standby mode.
	BEEP	Selects whether or not the unit beeps. **ON :** Enables the beep. **OFF:** Disables the beep.
	LCD BRIGHT	Adjusts the LCD monitor brightness. Press the ⇧/⇩ buttons and the EXEC button to adjust and set the brightness. You can also adjust the brightness by pressing the ⇧/⇩ buttons on the Data screen. (The triangle under the bar is displayed in green when the setting is set to the factory preset value.)
	LCD COLOR (for the DSR-45) / LCD COLOUR (for the DSR-45P)	Adjusts the depth of color of the LCD monitor. Press the ⇧/⇩ buttons and the EXEC button to adjust and set the depth of color. (The triangle under the bar is displayed in green when the setting is set to the factory preset value.)
	CLOCK SET	Sets the internal clock of the unit. Pressing the ⇧/⇩ buttons and the EXEC button, set the time (year, month, day, hour and minute). (When you set the minute, the second count will start from 00.) **Notes** • Regardless of the DATE DISP setting, the date is displayed in the Y/M/D format while you are setting CLOCK SET. • The internal backup battery will be fully charged in about 8 hours when power is provided to the unit. A fully charged internal backup battery can run the internal clock for about two weeks without the power provided through the AC power cord. • If the unit starts recording while you are setting this item, the value at that time is set in the internal clock.
	HRS METER *(page 100 (GB))*	Displays the accumulated time counts (by the digital hours meter) in units of 10 hours or 10 counts. **OPERATION:** Power supplied duration **DRUM RUN:** Drum rotation duration **TAPE RUN:** Tape run duration **THREADING:** Tape unthreading count

Chapter 7

Maintenance

Troubleshooting

Please check the following before contacting your Sony dealer.

Symptom	Cause/Remedy
The power cannot be turned on.	• The AC power cord is disconnected. → Connect the AC power cord. • The REMOTE/LOCAL switch is set to REMOTE. → Set the switch to LOCAL.
The unit will not operate even if the power has been turned on.	• The REMOTE/LOCAL switch is set to REMOTE. → Set the switch to LOCAL. • Moisture condensation has occurred. → Turn off the power, disconnect the AC power cord. Reconnect the AC power cord after about one minute and turn on the power. Then if there is a cassette in the unit, remove the cassette and leave it for more than one hour. • The cassette is not inserted straight. → Eject and reinsert it straight.
The cassette cannot be inserted.	• There is moisture condensation on the head drum. → With the unit powered on, wait more than one hour. • The cassette is not inserted straight. → Eject and reinsert it straight. • Another cassette has been loaded already. → Remove the cassette and insert the one you want to load. • The cassette compartment is closed. → Press the EJECT button to open the compartment.
It takes time to eject the cassette.	This is not a malfunction. → This unit ejects the cassette slowly to protect the tape. While the cassette is being ejected, the 📼 (cassette) indicator flashes.
No picture.	The video heads are dirty. → Clean the video heads using the supplied cleaning cassette.
Noise appears on the screen.	• A damaged tape is loaded. → Remove the cassette and insert another one. • The video heads are dirty. → Clean the video heads using the supplied cleaning cassette. • You have tried to make the unit play back a tape recorded in the LP mode of the DV format. → This unit can play back only tapes recorded in the DVCAM format or in the SP mode of the DV format. A tape recorded in the LP mode of the DV format cannot be played back on this unit.
No picture via the DV jack.	• Reconnect the i.LINK cable (DV cable) (not supplied). • The INPUT SELECT selector is set to a position other than DV. → Set the selector to DV.

(Continued)

Symptom	Cause/Remedy
EE pictures and EE sound are not output.	• EE/PB SEL on the DISPLAY SET menu is set to PB. → Set EE/PB SEL to EE. • The setting of the INPUT SELECT selector does not match the signal input. → Set the selector according to the signal input.
The audio is noisy.	• A damaged tape is loaded. → Remove the cassette and insert another one. • The video heads are dirty. → Clean the video heads using the supplied cleaning cassette.
Duplication does not function.	Check the STOP/CAUTION No. and the warning messages displayed on the LCD monitor. Take the appropriate action *(See page 72 (GB))*.
Audio dubbing cannot be done. Audio dubbing is interrupted.	You are trying to dub the sound onto a DV-formatted tape. → Sounds can be dubbed only onto a DVCAM-formatted tape (recorded) in the 32 kHz audio mode (4-channel). If the unit detects the following, audio dubbing will automatically abort, an alarm message will be superimposed on the LCD monitor and on an external monitor. • A blank portion • A section recorded in other than 32 kHz audio mode (4-channel) • A portion recorded in other than DVCAM format
A menu item is not available.	• The REMOTE/LOCAL switch is set to REMOTE. → First, set the switch to LOCAL, then adjust the menu. • If you have set REC MODE on the VTR SET menu to DV SP, some menu items will be disabled. → Set REC MODE on the VTR SET menu to DVCAM *(See page 90 (GB))*. • Some menu items are only available in the EE mode or playback mode. → Set the unit to the EE mode or playback mode. • Some items on the TC/UB SET menu are available only if you have set TC MAKE to PRESET. → Set TC MAKE to PRESET *(See page 61 (GB))*. • Some items on the VIDEO SET menu are available only if EXT SYNC is set to ON and the reference video signals are being input. → *For details, see page 86 (GB).* • Some menu items are not available when the REC/SAVE switch on the cassette inside the unit has been set to SAVE. → Set the switch to REC.
Some menu item settings change accidentally.	You have pulled out the plug of the power cord from an AC outlet or the unit while adjusting the menu or the brightness of the LCD monitor. → Adjust the menu again. To prevent this incident recurring, do not pull out the plug while adjusting the menu or the brightness of the LCD monitor.
The unit operates by itself.	COMMANDER on the OTHERS menu is set to WIRELESS and a Sony Remote Commander whose command mode is set to VTR4 is operated near the unit. → Set COMMANDER to CONTROL S.
The Remote Commander or the Remote Control Unit does not function.	The setting of COMMANDER on the OTHERS menu is not appropriate. → Change the setting of COMMANDER according to the device used.
Even though the settings on this unit are correct, you cannot make the unit record using the Remote Control Unit (DSRM-20, not supplied).	On the Remote Control Unit, press the PLAY button while holding the REC button down.
Even though DV IN TC on the TC/UB SET menu is set to EXTERNAL, the time code of the input DV signal is not recorded.	• REC MODE on the VTR SET menu is set to DV SP. → Set REC MODE to DVCAM. • The DV signal output from the digital non-linear editing controller does not include a time code. → Confirm that the editing software you are using is capable of outputting of a time code. • The INPUT SELECT selector is not set to DV. → Set it to DV.
The edit timing is not accurate.	You have not adjusted the edit timing yet. → Adjust the edit timing *(See page 56 (GB))*.

Symptom	Cause/Remedy
The edit timing with the DV connection is not accurate.	Editing accuracy with the DV connection is not guaranteed.
After playing at 1/10 of normal speed in forward or reverse for more than one minute, normal playback forward starts.	To protect a tape, the unit is set to start normal playback after playing at 1/10 of normal speed in forward or reverse for more than one minute. Play back the tape at 1/3 of normal speed.
Playback pause mode is released and the unit goes into the stop mode.	To protect the tape, the unit is set to go into the stop mode after the playback pause mode continues for a certain period. → Set FROM STILL on the VTR SET menu to STEP FWD. If you do so, the tape will forward by one frame for each time interval set in STILL TIME.
Playback pause mode is released and the tape forwards by one frame for each preset time interval.	To protect the tape, the unit is set to forward the tape by one frame after the playback pause mode continues for a certain period. → Set FROM STILL on the VTR SET menu to STOP. If you do so, the unit will go into the stop mode after the playback pause mode continues for the interval set in STILL TIME.
After the unit has been left in the stop mode and no key operations have been attempted for more than one hour, the unit goes into the standby mode (the unit's power turns off).	AUTO STBY on the OTHERS menu is set to ENABLE. → Set AUTO STBY to DISABLE.
The pause mode of recording, audio dubbing, or duplicating is released automatically.	To protect the tape and the video heads, the unit goes into the stop mode after the pause mode of recording, audio dubbing, or duplicating continues for more than five minutes.
When the tape is rewound to its beginning, the playback automatically starts.	• The TIMER selector is set to REPEAT. → Set the TIMER selector to OFF. • You pressed the PLAY button while holding the REW button down. → If you do this, the unit rewinds the tape to its beginning and begins playback *(See page 16 (GB))*.
During playback, the unit starts rewinding suddenly.	The TIMER selector is set to REPEAT. → When the TIMER selector is set to REPEAT, the unit starts rewinding at the moment when a signal for index search or a blank portion is detected. Set the TIMER selector to OFF.
When the tape reaches its end, rewinding starts automatically.	The TIMER selector is set to REPEAT. → When the TIMER selector is set to REPEAT, the unit starts rewinding at the moment when the end of the tape is detected. Set the TIMER selector to OFF.
Whenever you connect the unit to an AC outlet, the unit automatically starts recording.	The TIMER selector is set to REC. → When the TIMER selector is set to REC, the unit starts recording whenever the power is connected. Set the TIMER selector to OFF.
Even though the REMOTE/LOCAL switch is set to REMOTE, the unit starts recording/playback by itself.	• The TIMER selector is set to REPEAT or REC. → The TIMER selector setting has a higher priority than the REMOTE/LOCAL switch setting. Set the TIMER selector to OFF. • When LOCAL ENBL on the REMOTE menu is set to other than NO KEY and COMMANDER on the OTHERS menu is set to WIRELESS, the unit responds to signals from the Remote Commander even though the REMOTE/LOCAL switch is set to REMOTE. → Change the setting of LOCAL ENBL or COMMANDER.
The unit automatically goes into the playback pause mode when the tape reaches its beginning or its end.	When the remote selector is set to RS-422A and the REMOTE/LOCAL switch is set to REMOTE, the unit automatically goes into the playback pause mode when the tape reaches its beginning or its end. (This action is required when you control the unit using a device connected to the RS-422A connector.) If you do not intend to control the unit from an external device (i.e., do not intend to use the unit in an editing system), set the remote selector to other than RS-422A.
Whenever you connect the unit to an AC outlet, the unit turns on automatically.	• AC ON MODE on the OTHERS menu is set to POWER ON. → set AC ON MODE to STBY. • There is a cassette inside the unit and the TIMER selector is set to REPEAT or REC. → Set the TIMER selector to OFF.

(Continued)

Symptom	Cause/Remedy
When you set the INPUT LEVEL selector: • You do not know how to adjust the input level. • The recorded level is too low. • The recorded sound is distorted.	Confirm the level of the sound output from the player by referring to the player's instruction manual. According to that output level, set the INPUT LEVEL selector on the rear panel of this unit so as to obtain an optimum level. If you are not clear about the player's output level, try the following procedure. ① Specify the output level by types of audio output connectors available on the player. • If the player is equipped with phono jacks: Set the INPUT LEVEL selector to –10. • If the player is equipped with XLR connectors: Set the INPUT LEVEL selector to +4 or –2. ② Set the AUDIO INPUT switch on the front panel to MANU and adjust the AUDIO REC LEVEL control knobs to a median value. Then, play back the tape which you intend to use for playback. When the playback audio level is at its maximum, if the audio levels meters exceed 0 dB, set the INPUT LEVEL selector to the lower step (+4 or –2) or turn the AUDIO REC LEVEL control knobs to adjust the recording level. The recorded sound at the portion where the meters exceed 0 dB will be distorted.
The unit does not function as part of a digital non-linear editing system.	• The INPUT SELECT selector is set to a setting other than DV. → Set it to DV. • The editing controller or the editing software is not compatible with this unit. → Refer to the instruction manuals of the controller or the software and consult their manufacturers.
An editing point cannot be located using an editing controller connected to the RS-422A connector.	• Set FF/REW SPD on the VTR SET menu to SHUTTLEMAX. If this item has been set to FF/REW, some editing controllers that are not compatible with the rewinding / fast-forwarding speeds of this unit may not be able to locate an editing point. • If the tape has a portion where the time code is not continuous or is not recorded, an editing point may not be located. • This unit only can edit using the time code. If you choose to edit using the CTL signal, it may not be possible to locate an editing point. • If you use a PAL formatted tape in the DSR-45 (or use an NTSC formatted tape in the DSR-45P) or a tape with both NTSC and PAL color system recordings, it may not be possible to locate an editing point accurately.
The unit cannot be operated using a device connected to one of the connectors in the remote control section.	The setting of the remote selector is not appropriate. → Set the remote selector according to the connector you are using. If the unit cannot be operated even though the remote selector is set appropriately, press the RESET button located on the bottom of the unit. However, if you do this, the time set in the internal clock and the time code of the FREE RUN setting will be initialized.
No picture on the LCD monitor.	The CHARACTER DISPLAY (LCD) selector has been set to ON (BLACK BACK). → Set it to ON.

Alarm Messages

If an error occurs, a warning appears on the LCD monitor and the MONITOR VIDEO output (if the CHARACTER DISPLAY (MONITOR OUT) switch is set to ON). Check them with the following list.

LCD monitor	Beep	Display window	Description/Recovery
⏏ DEW DETECTED	Beep	Err	Moisture condensation → Remove the cassette, then wait more than one hour with the unit powered on.
NO TAPE	Beep	Err	You tried to record without a cassette. → Insert a cassette.
	No beep	—	The tape is reaching the end during recording. → Provide a new cassette.
⏏ TAPE END	Beep	Err	The tape reached the end and still tried to record. → Rewind the tape or replace the cassette with a new one.
⏏ REC INHIBIT	Beep	Err	The cassette is write-protected. (The REC/SAVE switch is set to SAVE.) → Set the REC/SAVE switch to REC or use another cassette *(See page 30 (GB))*.
⊖ REC MODE NOT DVCAM	Beep	Err	You tried to dub the sound onto a tape that is not DVCAM-formatted. → Use a DVCAM-formatted tape on which the sound has been recorded in the 32 kHz audio mode (4-channel/12 bits).
⊖ 16BIT OR NO REC TAPE	Beep	Err	You tried to dub the sound onto a blank tape or onto a tape on which the sound was not recorded in the 32 kHz audio mode (4-channel/12 bits). → Use a DVCAM-formatted tape on which the sound has been recorded in the 32 kHz audio mode (4-channel/12 bits).
⊖ DV IN SELECTED	Beep	Err	You tried to dub the sound when the INPUT SELECT selector has been set to DV. → You cannot dub the sound in the DV input mode. Select another input mode.
CLOCK SET	No beep	—	You did not set the clock when you turned on the unit. → Set the clock using the menu *(See page 92 (GB))*.
COPYRIGHT PROTECTED	Beep	Err	You tried to record a copyright protected source. → You cannot record a copyright protected source *(See page 32 (GB))*.
⊗ HEAD CLOG ↕ Displayed alternately CLEANING CASSETTE	No beep	Err	The video heads are clogged. → Clean the video heads with the supplied cleaning cassette. (The unit can detect if the video heads are clean only before recording. If the video heads get clogged during recording, the unit cannot detect it.)
⏏	Beep	— a)	The unit is running the self-diagnostics *(See page 100 (GB))*.

a) A self-diagnostics code number (see page 100 (GB)) is displayed on the display window.

Notes on Use

Notes on the Videocassette Recorder

Do not use the unit in a place subject to direct sunlight or heat sources
If you do, its cabinet, mechanical parts, etc., may be damaged.

Do not use the unit in an extremely hot place
If the unit is left in a car parked with the windows closed (especially in summer), its cabinet, mechanical parts, etc., may be damaged or it may not work correctly.

If the unit is brought directly from a cold to a warm location
Moisture may condense inside the unit and cause damage to the video heads and tape. If you use the unit in a place subject to direct cold currents from an air conditioner, moisture may also condense inside the unit.

Do not place a heavy object on the unit
The cabinet, mechanical parts, etc., may be damaged, or the unit may not work correctly.

Do not handle the unit roughly
Avoid rough handling or mechanical shock to the unit.

To avoid damaging the cabinet's finish
Plastic is often used for the surface finishing of the unit. Do not spray a volatile solvent such as an insecticide toward the cabinet or place rubber or vinyl products on the cabinet for a long time. If you do, the finish of the cabinet may be damaged or the coating may come off.

Do not clean the cabinet with thinner or benzine
The cabinet may be damaged or its coating may come off. When you use a chemical-impregnated cloth, use it according to its directions.

Clean the cabinet with a soft dry cloth
When the cabinet is very dirty, clean it with a soft dry cloth lightly moistened with a mild detergent solution and finish it with a dry cloth.

Do not put magnetic objects close to the unit
Magnetic fields may damage the recording.

To prevent electromagnetic interference caused by radio communication equipment such as cellular phones, transceivers, etc.
The use of the radio communication equipment such as cellular phones or transceivers near the unit may cause a malfunction and can affect the audio/video signals. Cellular phones or transceivers near the unit should be switched off.

Do not use the unit in an area exposed to radiation
A malfunction may occur.

Checking the video heads every 1 000 hours
A VCR is a high-precision piece of equipment that records and plays back the picture recorded on a magnetic tape. In particular, the video heads and other mechanical parts may become dirty or worn. To maintain a clean picture, we recommend maintenance every 1 000 hours, even though the conditions of use may differ depending on temperature, humidity, dust, etc.

When you transport the unit
Be sure to transport the unit carefully. Do not use the supplied carton and packing materials repeatedly. They are made from corrugated cardboard, and are designed to protect the unit only one time, when the unit is purchased and delivered to you.

Cleaning of the Video Heads

With clogged video heads, the unit cannot record properly. Clean the video heads to prevent noise on the recorded picture or audio. For cleaning, use the supplied cleaning cassette.

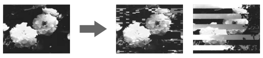
Before recording an important event
The unit cannot record properly with the clogged video heads. To ensure normal recording and clear pictures and sound, clean the video heads before recording an important event.

Every 50 hours
If you repeat the tape transport operation, the video heads will become dirty and coated with fine dirt or dust. Clean the heads every 50 hours.

After using a tape prone to clog the heads
After using such a tape causes the symptoms illustrated below, clean the heads.

When the symptoms caused by clogged video heads appear
Even if you clean the heads periodically, clogging of the heads may occur anyway. Clean the heads when:
- mosaic-pattern noise appears on the playback picture.
- a part of the playback picture does not move.
- playback pictures do not appear.
- playback audio is interrupted.

Symptoms caused by contaminated video heads



Normal picture

If these pictures appear on the screen, use the cleaning cassette.

To use the cleaning cassette
Refer to your cleaning cassette's instruction manual.

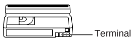
Cleaning cassettes are replaceable. The number of times you can use the cassette is specified in the cassette's instruction manual. After using the cassette that number of times, buy an optional DVCAM cleaning cassette or a Sony Digital Video Cleaning Cassette.

After prolonged use, the video heads may become worn out. If optimum picture quality is not restored even after you have cleaned the video heads with the cleaning cassette, the video heads may have worn out. In that case, you have to replace the video heads with new ones. Please consult your Sony dealer.

Notes on the Video Cassettes

If the cassette memory function does not work
Reinsert the cassette a few times. The terminal portion of the cassette may be dusty or dirty.

Cleaning the terminal
If the terminal of the cassette gets dirty, or dust sticks to the terminal, the unit may not work correctly. Clean the terminal with a swab once every ten times you eject a cassette.



When affixing a label to the cassette
Be sure to affix a label only on the correct location so as not to cause malfunction of the unit.

After using a cassette
After use, please be sure to rewind the tape completely (to prevent picture and sound distortion). Return it to its case and store it in an upright position.

Notes on the LCD Screen

The LCD screen is manufactured using high-precision technology. The ratio of effective pixels is 99.99% or more. However, there may be some tiny black points and/or bright points (red, blue, green or white) that constantly appear on the LCD screen. These points do not affect the recorded picture in any way.
Do not place this unit with the LCD screen pointing toward the sun. Otherwise, the unit may be damaged. The backlight used in the built-in LCD monitor deteriorates with prolonged use. If the brightness of the LCD monitor cannot be adjusted, consult your Sony dealer.

To clean the LCD screen
To remove dirt or to clean fingerprints from the LCD screen, use an LCD cleaning kit (not supplied).

About Moisture Condensation

If the unit or cassette is brought directly from a cold to a warm location, moisture may condense inside or outside the unit or tape. If you use the tape or video heads in this condition, the tape may adhere to the head drum, and the video heads or the tape may be damaged, or a malfunction may occur.

Moisture condensation is likely to occur under the following conditions:
- The unit or cassette is brought from the cold outdoors to a warm indoor location.
- The unit or cassette is brought from the air-conditioned indoors to the hot outdoors.
- The unit is used in a place subject to cold currents from an air conditioner.

When bringing the unit or cassette from a cold place to a warm place or vice versa, put it in a plastic bag and seal the bag tightly. After bringing it into the new place, leave the bag on for more than one hour, and remove the bag when the air temperature inside it has reached the temperature surrounding it.

If moisture condensation occurred
You cannot operate the unit except to press EJECT, and a cassette cannot be inserted. If this occurs, with the unit powered on, remove the cassette, then wait more than one hour for the moisture to evaporate.

Digital Hours Meter

The digital hours meter keeps cumulative counts of the total operation time, the head drum rotation time, the tape running time and the number of unthreading operations. These counts can be displayed on the menu. Use them as guidelines for scheduling maintenance.
In general, consult your Sony dealer about necessary periodic maintenance checks.

The digital hours meter has the following four display modes and you can check them in HRS METER of the OTHERS menu *(See page 92 (GB))*.

- **OPERATION mode**
  The cumulative total hours of operating time is displayed in 10-hour increments.
- **DRUM RUN mode**
  The cumulative total hours of drum rotation with tape threaded is displayed in 10-hour increments.
- **TAPE RUN mode**
  The cumulative total hours of tape running time is displayed in 10-hour increments.
- **THREADING mode**
  The cumulative number of tape unthreading operations is displayed in 10-operation increments.

Self-diagnostics Function

The unit has a self-diagnostics display function.
This function displays the current condition of the unit as a five-digit code (a combination of a letter and numbers), on the LCD monitor, display window, and MONITOR VIDEO output. If a five-digit code is displayed, check the following code chart. The last two digits (indicated by □□) will differ depending on the state of your unit.

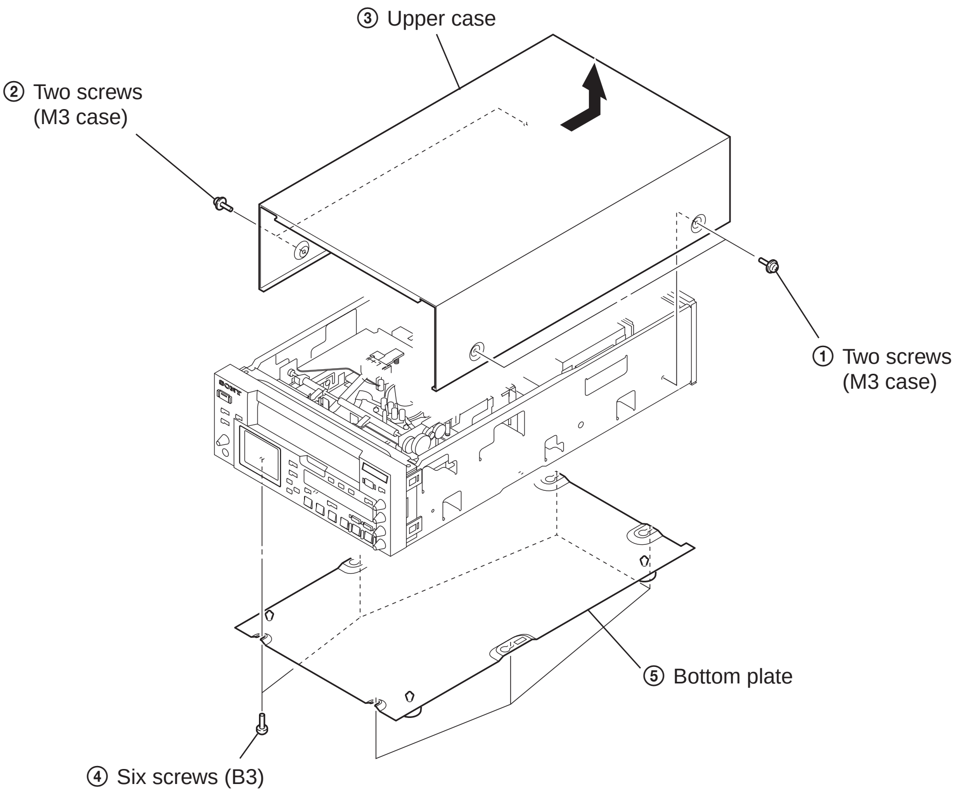
Code	Symptom	Remedy
C:21:□□	Moisture condensation has occurred.	Remove the cassette, then wait more than one hour with the power on.
C:22:□□	The video heads are dirty.	Clean the heads using the cleaning cassette (supplied).
C:31:□□	To prevent the unit from malfunctioning, the self-diagnostics function has taken over.	• Remove the cassette, or change the unit to the standby mode once and then turn the unit on again. • Disconnect the AC power cord. After reconnecting it, operate the unit.
C:32:□□	To prevent the unit from malfunctioning, the self-diagnostics function has taken over.	• Change the unit to the standby mode once and then turn the unit on again. • Disconnect the AC power cord. After reconnecting it, operate the unit.

If you are unable to resolve the problem, or a code other than those in the above chart appears, contact your Sony dealer or local authorized Sony service facility and inform them of the number.

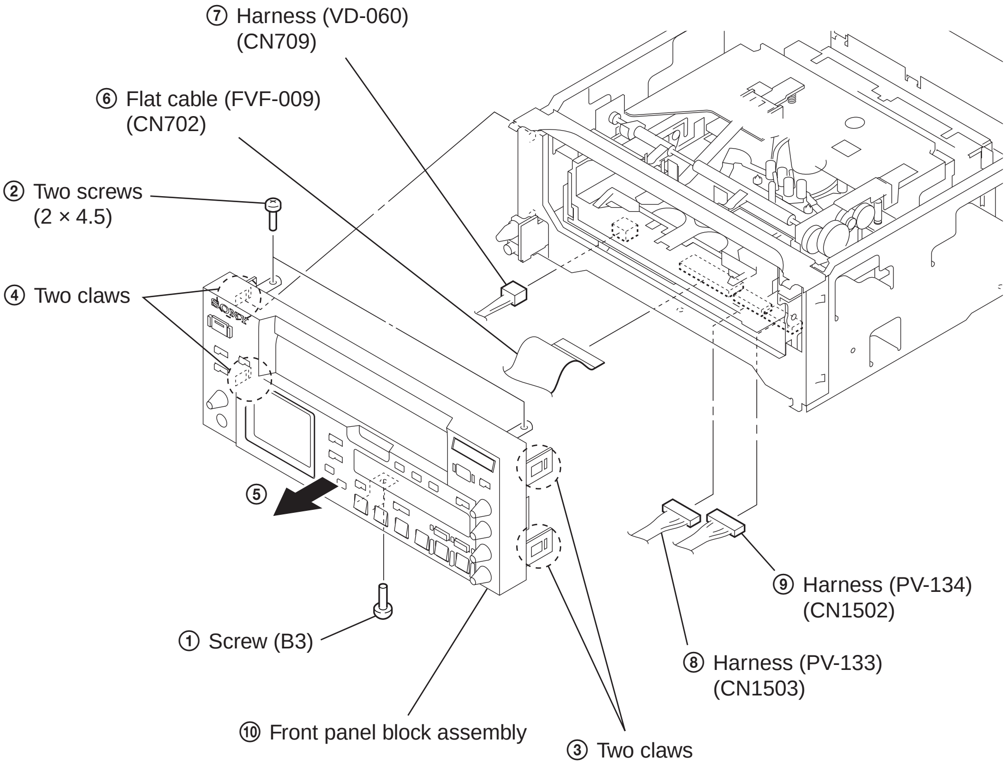
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

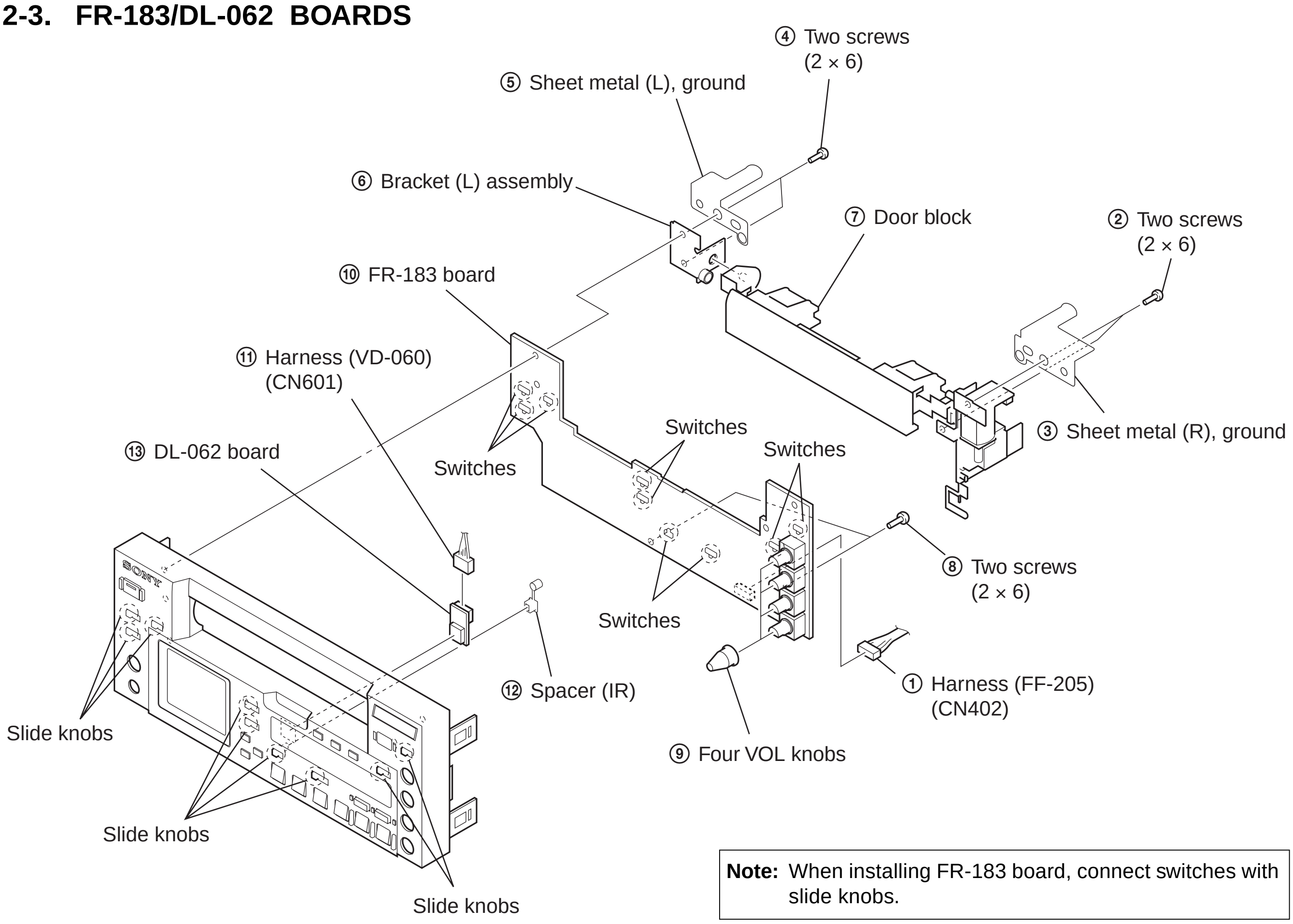
2-1. UPPER CASE, BOTTOM PLATE


③ Upper case
② Two screws
(M3 case)
① Two screws
(M3 case)
⑤ Bottom plate
④ Six screws (B3)

2-2. FRONT PANEL BLOCK ASSEMBLY

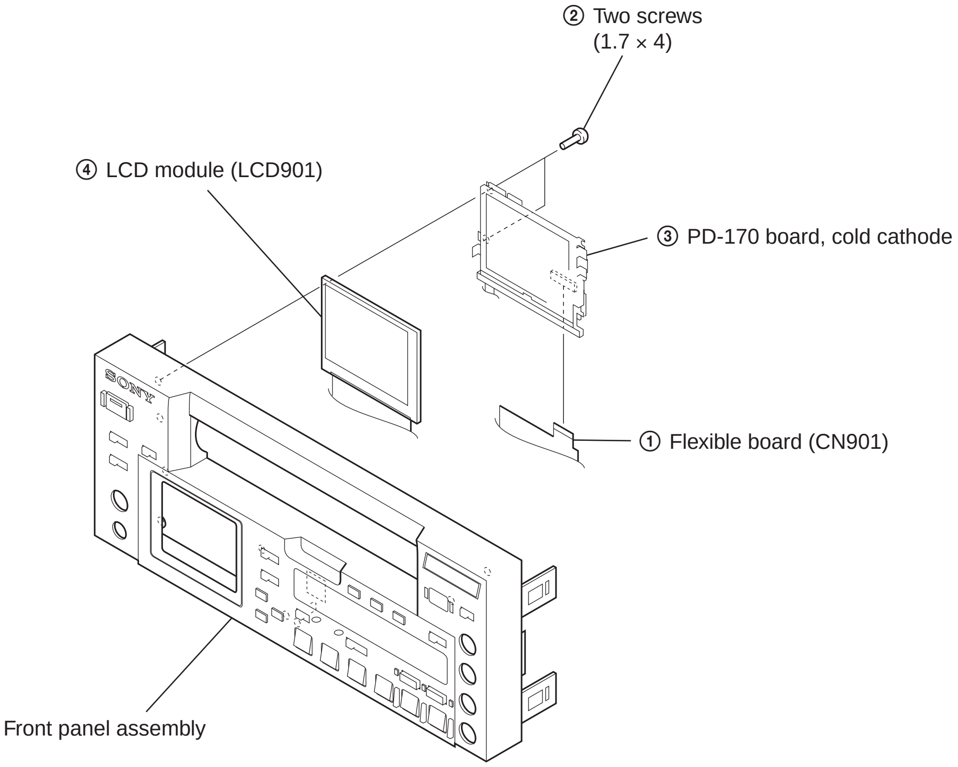

⑦ Harness (VD-060)
(CN709)
⑥ Flat cable (FVF-009)
(CN702)
② Two screws
(2 × 4.5)
④ Two claws
⑤
① Screw (B3)
⑩ Front panel block assembly
③ Two claws
⑨ Harness (PV-134)
(CN1502)
⑧ Harness (PV-133)
(CN1503)

2-3. FR-183/DL-062 BOARDS

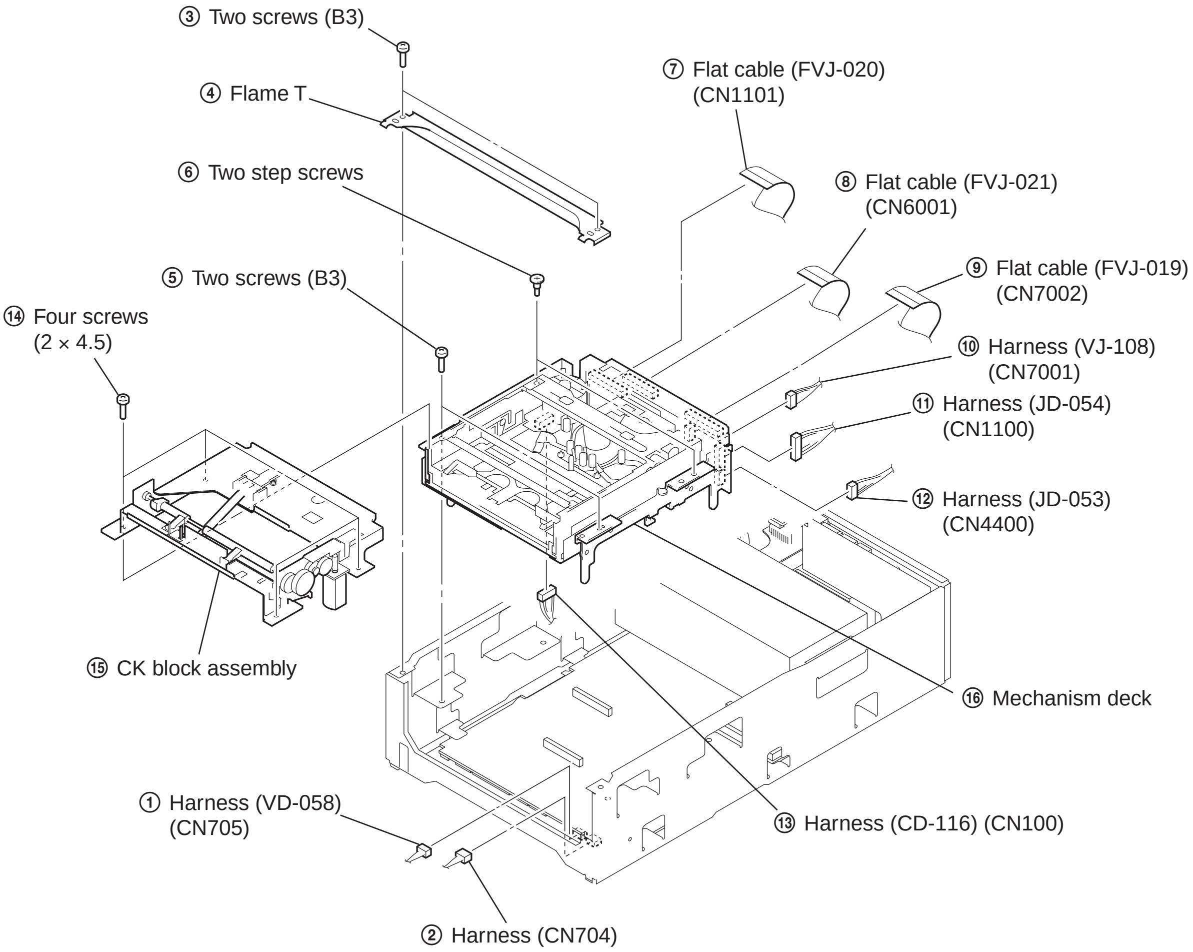

④ Two screws
(2 × 6)
⑤ Sheet metal (L), ground
⑥ Bracket (L) assembly
⑦ Door block
② Two screws
(2 × 6)
⑩ FR-183 board
⑪ Harness (VD-060)
(CN601)
③ Sheet metal (R), ground
Switches
Switches
⑬ DL-062 board
Switches
⑧ Two screws
(2 × 6)
Switches
① Harness (FF-205)
(CN402)
⑫ Spacer (IR)
Slide knobs
⑨ Four VOL knobs
Slide knobs
Slide knobs

Note: When installing FR-183 board, connect switches with slide knobs.

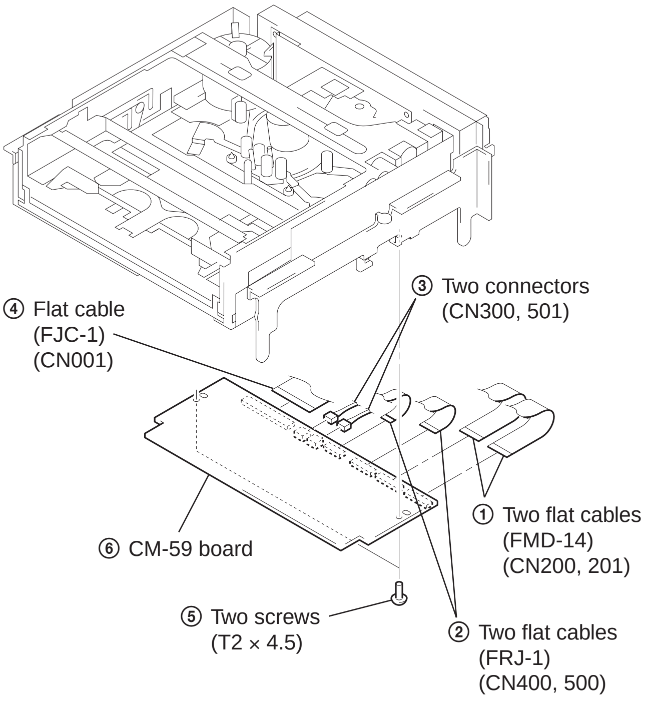
2-4. LCD MODULE (LCD901)


② Two screws
(1.7 × 4)
④ LCD module (LCD901)
③ PD-170 board, cold cathode
① Flexible board (CN901)
Front panel assembly

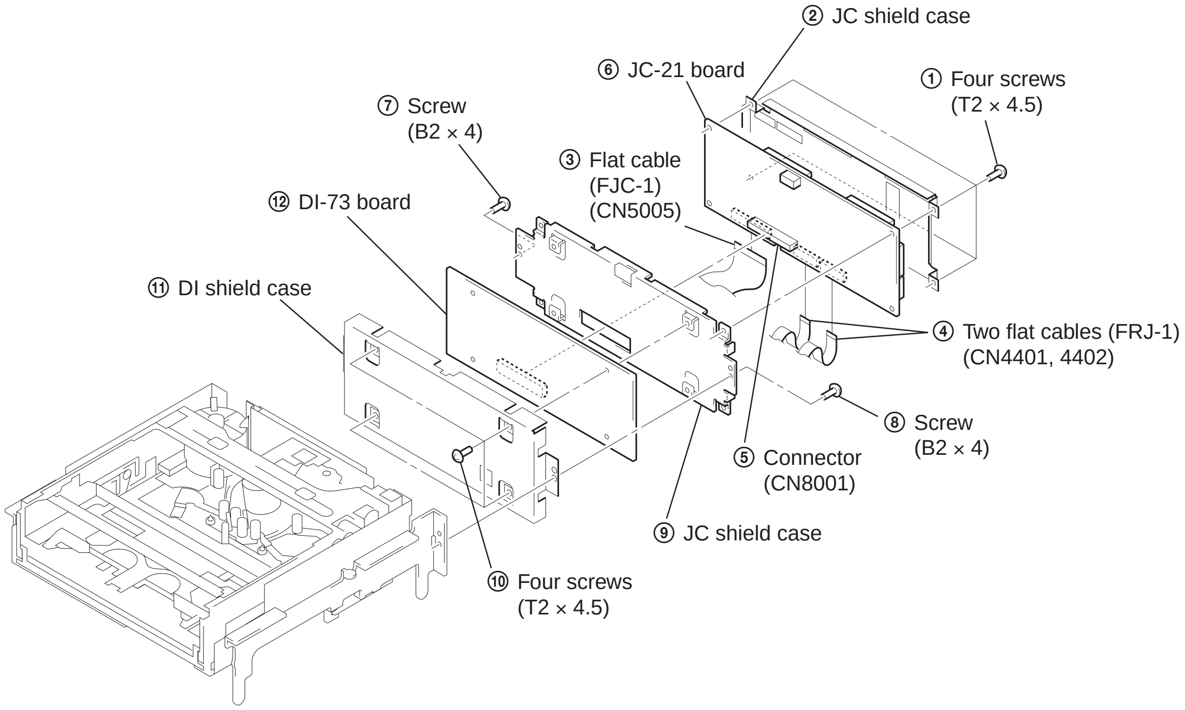
2-5. MECHANISM DECK


③ Two screws (B3)
④ Flame T
⑥ Two step screws
⑤ Two screws (B3)
⑭ Four screws
(2 × 4.5)
⑦ Flat cable (FVJ-020)
(CN1101)
⑧ Flat cable (FVJ-021)
(CN6001)
⑨ Flat cable (FVJ-019)
(CN7002)
⑩ Harness (VJ-108)
(CN7001)
⑪ Harness (JD-054)
(CN1100)
⑫ Harness (JD-053)
(CN4400)
⑮ CK block assembly
⑯ Mechanism deck
① Harness (VD-058)
(CN705)
⑬ Harness (CD-116) (CN100)
② Harness (CN704)

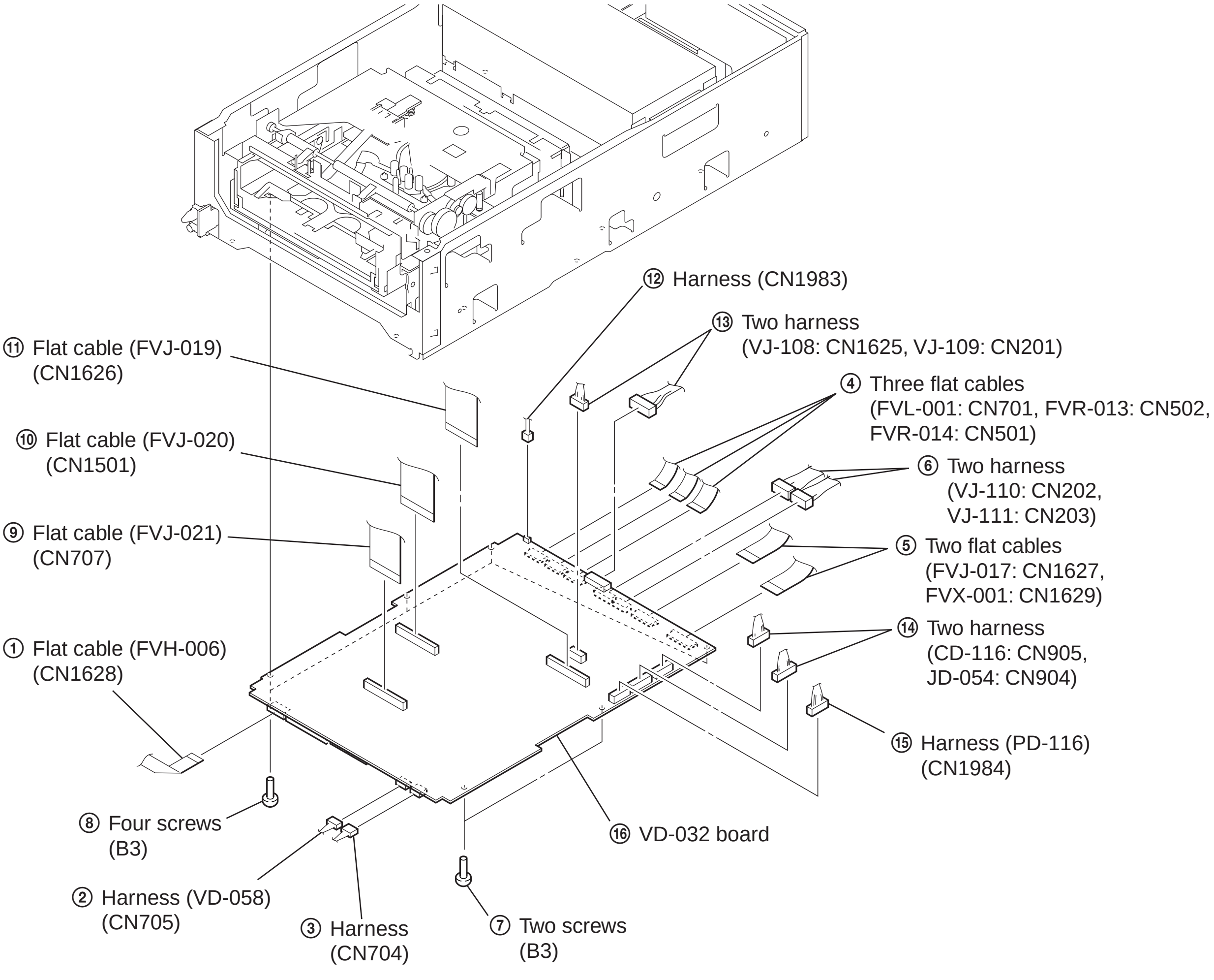
2-6. CM-59 BOARD


④ Flat cable
(FJC-1)
(CN001)
③ Two connectors
(CN300, 501)
① Two flat cables
(FMD-14)
(CN200, 201)
⑥ CM-59 board
⑤ Two screws
(T2 × 4.5)
② Two flat cables
(FRJ-1)
(CN400, 500)

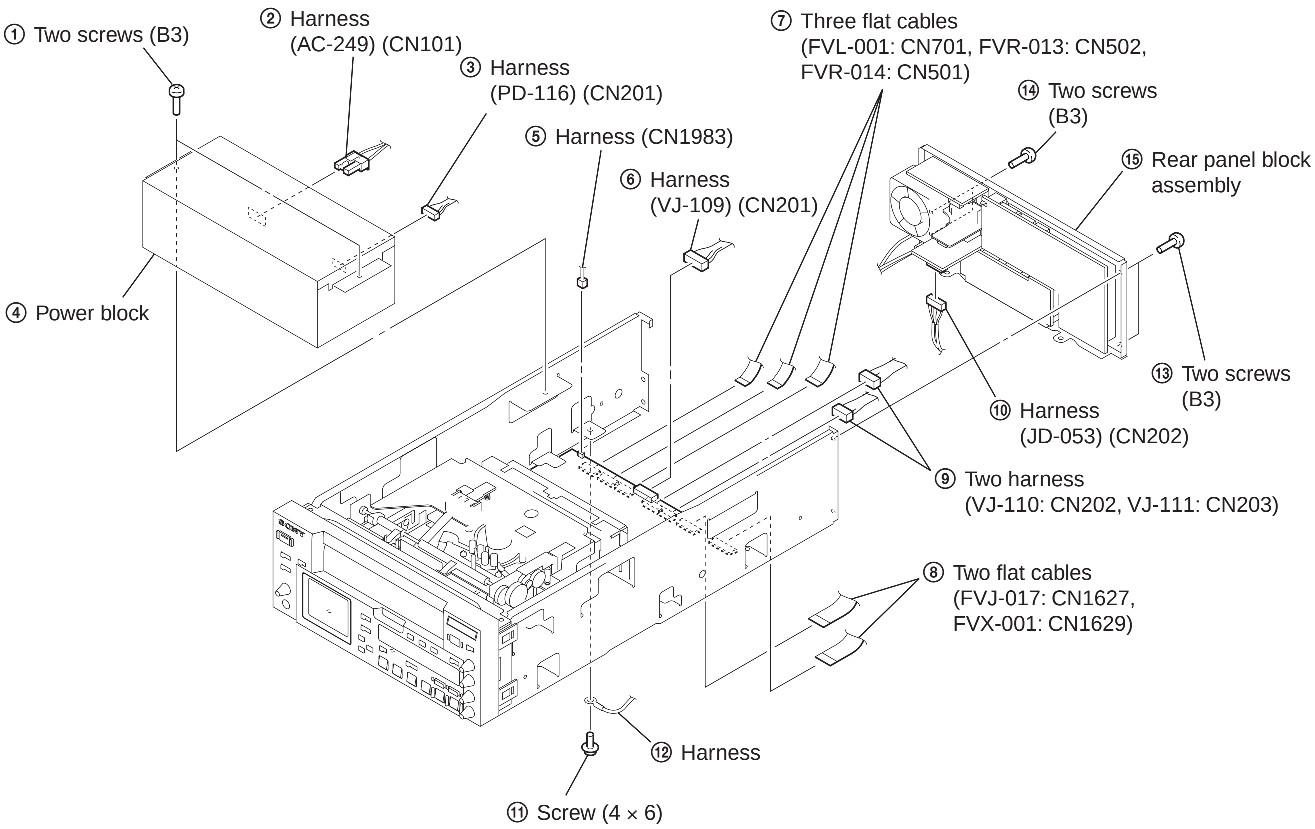
2-7. JC-21/DI-73 BOARDS


② JC shield case
⑥ JC-21 board
① Four screws
(T2 × 4.5)
⑦ Screw
(B2 × 4)
③ Flat cable
(FJC-1)
(CN5005)
⑫ DI-73 board
⑪ DI shield case
④ Two flat cables (FRJ-1)
(CN4401, 4402)
⑧ Screw
(B2 × 4)
⑤ Connector
(CN8001)
⑨ JC shield case
⑩ Four screws
(T2 × 4.5)

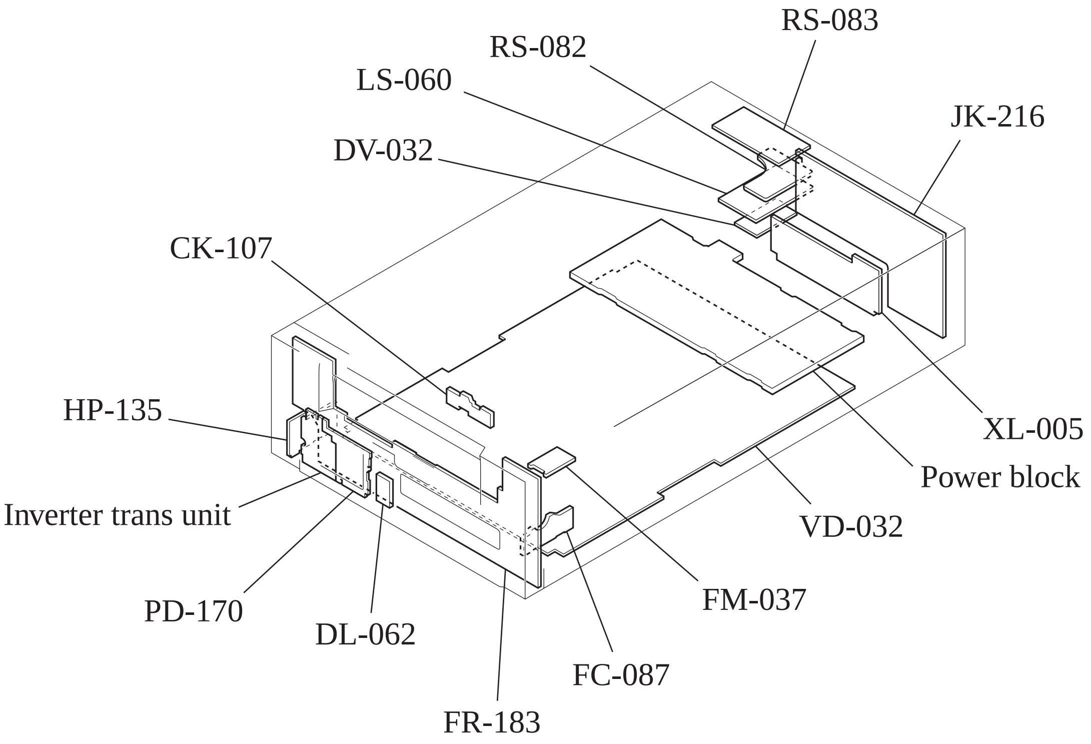
2-8. VD-032 BOARD


⑫ Harness (CN1983)
⑬ Two harness
(VJ-108: CN1625, VJ-109: CN201)
⑪ Flat cable (FVJ-019)
(CN1626)
④ Three flat cables
(FVL-001: CN701, FVR-013: CN502,
FVR-014: CN501)
⑩ Flat cable (FVJ-020)
(CN1501)
⑥ Two harness
(VJ-110: CN202,
VJ-111: CN203)
⑨ Flat cable (FVJ-021)
(CN707)
⑤ Two flat cables
(FVJ-017: CN1627,
FVX-001: CN1629)
① Flat cable (FVH-006)
(CN1628)
⑭ Two harness
(CD-116: CN905,
JD-054: CN904)
⑮ Harness (PD-116)
(CN1984)
⑧ Four screws
(B3)
⑯ VD-032 board
② Harness (VD-058)
(CN705)
③ Harness
(CN704)
⑦ Two screws
(B3)

2-9. REAR PANEL BLOCK ASSEMBLY

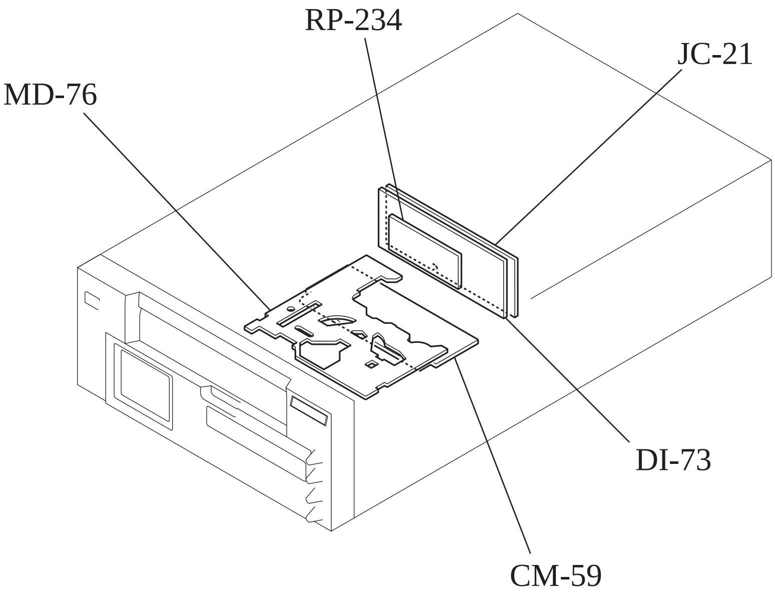

① Two screws (B3)
② Harness (AC-249) (CN101)
③ Harness (PD-116) (CN201)
④ Power block
⑤ Harness (CN1983)
⑥ Harness (VJ-109) (CN201)
⑦ Three flat cables (FVL-001: CN701, FVR-013: CN502, FVR-014: CN501)
⑭ Two screws (B3)
⑮ Rear panel block assembly
⑬ Two screws (B3)
⑩ Harness (JD-053) (CN202)
⑨ Two harness (VJ-110: CN202, VJ-111: CN203)
⑧ Two flat cables (FVJ-017: CN1627, FVX-001: CN1629)
⑫ Harness
⑪ Screw (4 × 6)

2-10. CIRCUIT BOARDS LOCATION-1 (OVER ALL)


RS-083
RS-082
LS-060
JK-216
DV-032
CK-107
HP-135
XL-005
Power block
Inverter trans unit
VD-032
FM-037
PD-170
DL-062
FC-087
FR-183

Board Name	Function
DV-032	DV CONNECTOR
VD-032	SYNC GENERATOR, VIDEO IN, UVIC, VIDEO OUT, AUDIO, HI CONTROL, RS232C/422 CONTROL, DC IN, DC/DC CONVERTER, DV CONNECTOR
CK-107	EJECTION DETECT SWITCH
DL-062	REMOTE CONTROL RECEIVER
FC-087	FRONT DOOR DETECT SWITCH
FM-037	FRONT DOOR MOTOR
FR-183	USER CONTROL
HP-135	HEAD PHONE
PD-170	RGB DRIVER, TIMING GENERATOR
JK-216	VIDEO/AUDIO IN/OUT
XL-005	AUDIO OUT
RS-082	RS-422 DRIVER
RS-083	RS-232C DRIVER
LS-060	CONTROL JACK

2-11. CIRCUIT BOARDS LOCATION-2 (MECHANISM DECK)

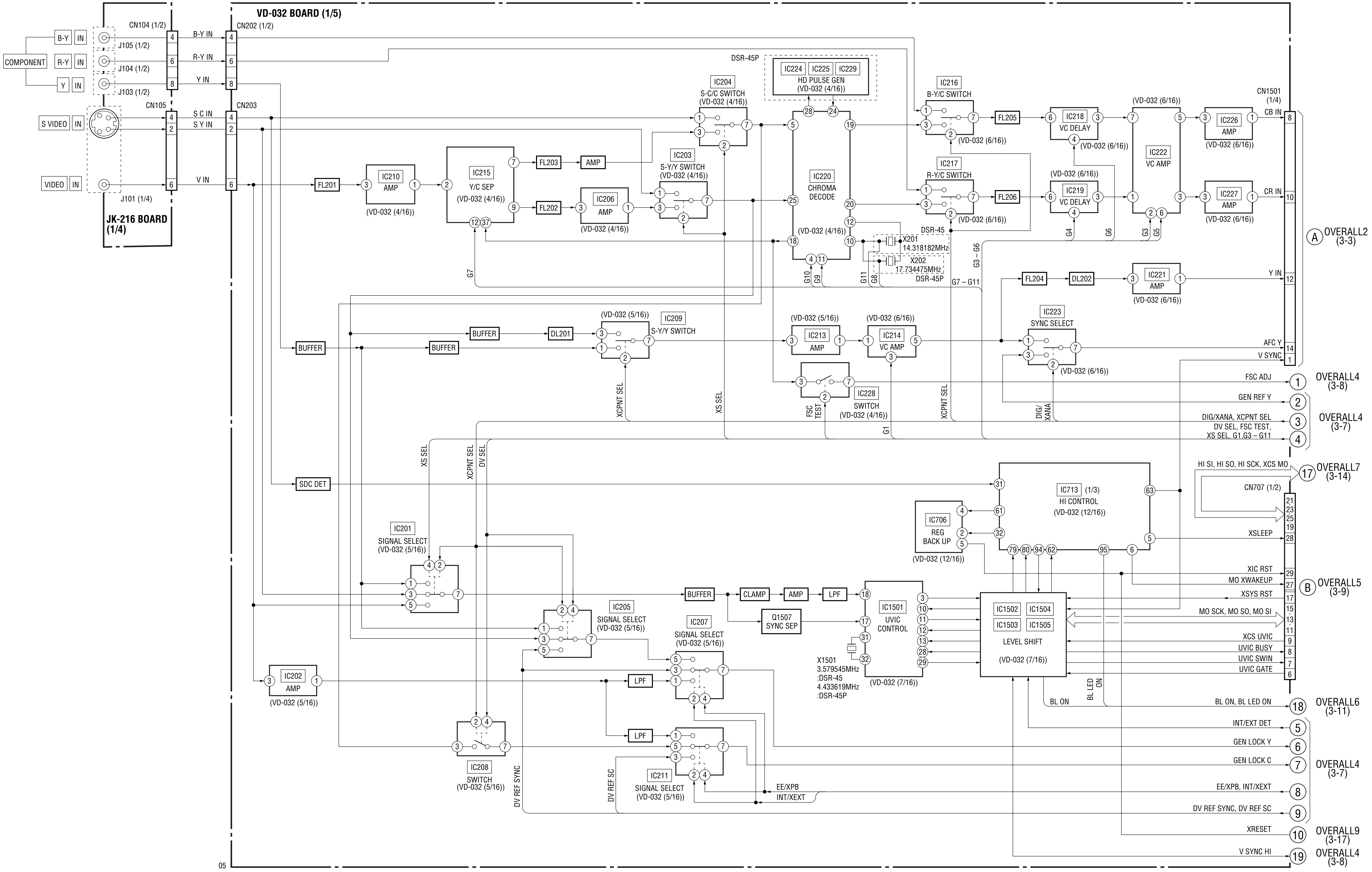


Board Name	Function
MD-76	TAPE SENSOR
RP-234	REC/PB AMP
JC-21	VIDEO PB AMP, VIDEO A/D CONVERTER, CHROMA MIX, AFC, VFD, SFD, TFD, DV INTERFACE, MECHANISM CONTROL, AUDIO, POWER SUPPLY
DI-73	VIDEO D/A CONVERTER, SYNC SHIFTER, AUDIO A/D, D/A CONVERTER, AUDIO DSP, TIME CODE IN/OUT
CM-59	DC/DC CONVERTER, MOTOR DRIVE

SECTION 3
BLOCK DIAGRAMS

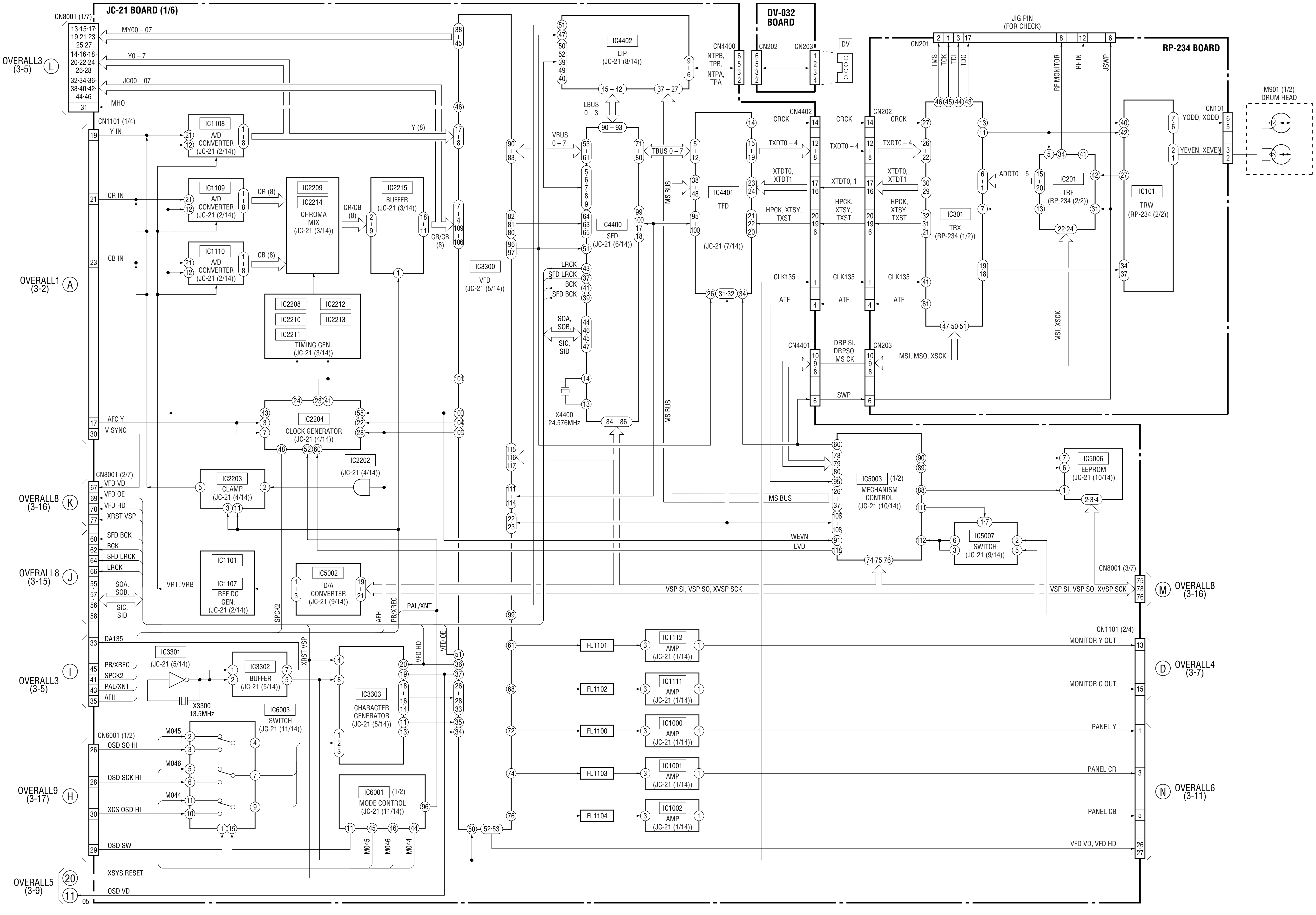
3-1. OVERALL BLOCK DIAGRAM 1

( ): Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


VD-032 BOARD (1/5)
JK-216 BOARD (1/4)
COMPONENT
B-Y IN
R-Y IN
Y IN
S VIDEO IN
VIDEO IN
J105 (1/2)
J104 (1/2)
J103 (1/2)
J101 (1/4)
CN104 (1/2)
CN105
CN202 (1/2)
CN203
B-Y IN
R-Y IN
Y IN
S C IN
S Y IN
V IN
FL201
IC210 AMP (VD-032 (4/16))
IC215 Y/C SEP (VD-032 (4/16))
FL203
AMP
FL202
IC206 AMP (VD-032 (4/16))
IC204 S-C/C SWITCH (VD-032 (4/16))
IC203 S-Y/Y SWITCH (VD-032 (4/16))
DSR-45P
IC224 IC225 IC229 HD PULSE GEN (VD-032 (4/16))
IC220 CHROMA DECODE (VD-032 (4/16))
X201 14.318182MHz DSR-45
X202 17.734475MHz DSR-45P
IC216 B-Y/C SWITCH (VD-032 (6/16))
IC217 R-Y/C SWITCH (VD-032 (6/16))
FL205
FL206
IC218 VC DELAY (VD-032 (6/16))
IC219 VC DELAY (VD-032 (6/16))
IC222 VC AMP (VD-032 (6/16))
IC226 AMP (VD-032 (6/16))
IC227 AMP (VD-032 (6/16))
CN1501 (1/4)
CB IN
CR IN
Y IN
AFC Y
V SYNC
FL204
DL202
IC221 AMP (VD-032 (6/16))
G7
G10 G9
G11 G8
G3 – G6
G7 – G11
G4 G6 G3 G5
BUFFER
BUFFER
BUFFER
DL201
IC209 S-Y/Y SWITCH (VD-032 (5/16))
IC213 AMP (VD-032 (5/16))
IC214 VC AMP (VD-032 (6/16))
IC223 SYNC SELECT (VD-032 (6/16))
IC228 SWITCH (VD-032 (4/16))
XCPNT SEL
XS SEL
FSC TEST
G1
XCPNT SEL
DIG/XANA
FSC ADJ
GEN REF Y
DIG/XANA, XCPNT SEL
DV SEL, FSC TEST,
XS SEL, G1,G3 – G11
A OVERALL2 (3-3)
1 OVERALL4 (3-8)
2
3 OVERALL4 (3-7)
4
XS SEL
XCPNT SEL
DV SEL
SDC DET
IC713 (1/3) HI CONTROL (VD-032 (12/16))
IC706 REG BACK UP (VD-032 (12/16))
HI SI, HI SO, HI SCK, XCS MO
17 OVERALL7 (3-14)
CN707 (1/2)
XSLEEP
XIC RST
MO XWAKEUP
XSYS RST
MO SCK, MO SO, MO SI
XCS UVIC
UVIC BUSY
UVIC SWIN
UVIC GATE
B OVERALL5 (3-9)
IC201 SIGNAL SELECT (VD-032 (5/16))
IC205 SIGNAL SELECT (VD-032 (5/16))
IC207 SIGNAL SELECT (VD-032 (5/16))
BUFFER
CLAMP
AMP
LPF
Q1507 SYNC SEP
IC1501 UVIC CONTROL (VD-032 (7/16))
X1501 3.579545MHz :DSR-45 4.433619MHz :DSR-45P
IC1502 IC1504 IC1503 IC1505 LEVEL SHIFT (VD-032 (7/16))
IC202 AMP (VD-032 (5/16))
LPF
LPF
IC208 SWITCH (VD-032 (5/16))
IC211 SIGNAL SELECT (VD-032 (5/16))
DV REF SYNC
DV REF SC
BL ON
BL LED ON
BL ON, BL LED ON
18 OVERALL6 (3-11)
INT/EXT DET
GEN LOCK Y
GEN LOCK C
EE/XPB
INT/XEXT
EE/XPB, INT/XEXT
DV REF SYNC, DV REF SC
5
6
7 OVERALL4 (3-7)
8
9
XRESET
10 OVERALL9 (3-17)
V SYNC HI
19 OVERALL4 (3-8)
05

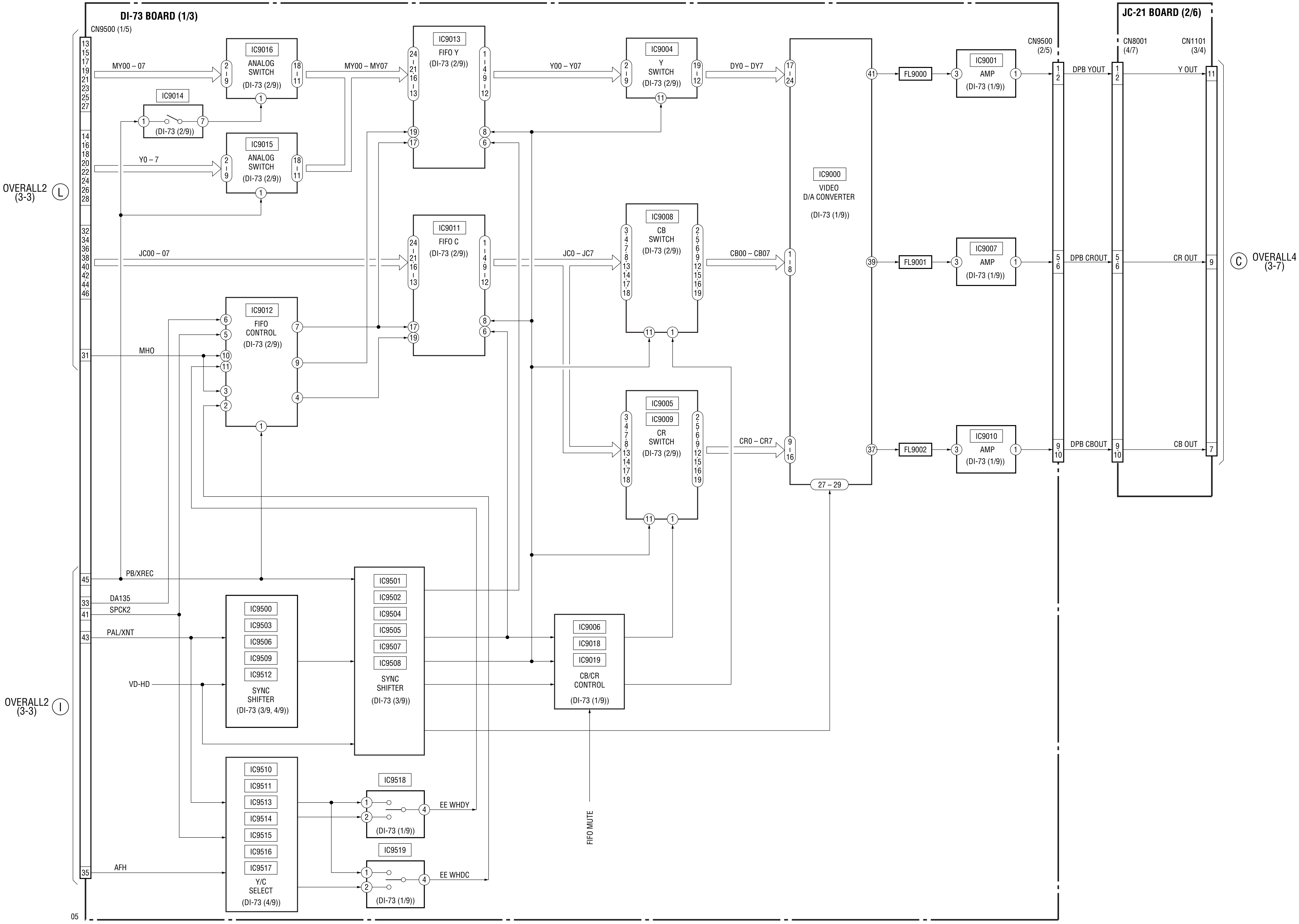
3-2. OVERALL BLOCK DIAGRAM 2

( ): Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


JC-21 BOARD (1/6)
DV-032 BOARD
RP-234 BOARD
CN8001 (1/7)
OVERALL3 (3-5) L
MY00 – 07
Y0 – 7
JC00 – 07
MHO
CN1101 (1/4)
Y IN
CR IN
CB IN
OVERALL1 (3-2) A
AFC Y
V SYNC
IC1108 A/D CONVERTER (JC-21 (2/14))
IC1109 A/D CONVERTER (JC-21 (2/14))
IC1110 A/D CONVERTER (JC-21 (2/14))
Y (8)
CR (8)
CB (8)
IC2209 IC2214 CHROMA MIX (JC-21 (3/14))
CR/CB (8)
IC2215 BUFFER (JC-21 (3/14))
IC2208 IC2212 IC2210 IC2213 IC2211 TIMING GEN. (JC-21 (3/14))
IC2204 CLOCK GENERATOR (JC-21 (4/14))
IC2202 (JC-21 (4/14))
IC3300 VFD (JC-21 (5/14))
IC4402 LIP (JC-21 (8/14))
LBUS 0 – 3
VBUS 0 – 7
TBUS 0 – 7
MS BUS
IC4400 SFD (JC-21 (6/14))
LRCK
SFD LRCK
BCK
SFD BCK
SOA, SOB,
SIC, SID
X4400 24.576MHz
IC4401 TFD (JC-21 (7/14))
CN4400
NTPB, TPB,
NTPA, TPA
CN202
CN203
DV
CN4402
CRCK
TXDT0 – 4
XTDT0, XTDT1
XTDT0, 1
HPCK, XTSY, TXST
CLK135
ATF
CN4401
DRP SI, DRPSO, MS CK
SWP
CN201
JIG PIN (FOR CHECK)
TMS TCK TDI TDO
RF MONITOR
RF IN
JSWP
IC301 TRX (RP-234 (1/2))
ADDT0 – 5
IC201 TRF (RP-234 (2/2))
IC101 TRW (RP-234 (2/2))
MSI, MSO, XSCK
MSI, XSCK
CN101
YODD, XODD
YEVEN, XEVEN
M901 (1/2) DRUM HEAD
CN8001 (2/7)
VFD VD
VFD OE
VFD HD
XRST VSP
OVERALL8 (3-16) K
IC2203 CLAMP (JC-21 (4/14))
SFD BCK
BCK
SFD LRCK
LRCK
SOA, SOB,
SIC, SID
OVERALL8 (3-15) J
VRT, VRB
IC1101 IC1107 REF DC GEN. (JC-21 (2/14))
IC5002 D/A CONVERTER (JC-21 (9/14))
SPCK2
AFH
PB/XREC
PAL/XNT
IC5003 (1/2) MECHANISM CONTROL (JC-21 (10/14))
MS BUS
WEVN
LVD
IC5006 EEPROM (JC-21 (10/14))
IC5007 SWITCH (JC-21 (9/14))
CN8001 (3/7)
VSP SI, VSP SO, XVSP SCK
OVERALL8 (3-16) M
DA135
PB/XREC
SPCK2
PAL/XNT
AFH
OVERALL3 (3-5) I
IC3301 (JC-21 (5/14))
X3300 13.5MHz
IC3302 BUFFER (JC-21 (5/14))
XRST VSP
IC6003 SWITCH (JC-21 (11/14))
IC3303 CHARACTER GENERATOR (JC-21 (5/14))
VFD HD
VFD OE
CN6001 (1/2)
OSD SO HI
OSD SCK HI
XCS OSD HI
OSD SW
M045
M046
M044
OVERALL9 (3-17) H
IC6001 (1/2) MODE CONTROL (JC-21 (11/14))
XSYS RESET
OSD VD
OVERALL5 (3-9) 20 11
FL1101 IC1112 AMP (JC-21 (1/14))
FL1102 IC1111 AMP (JC-21 (1/14))
FL1100 IC1000 AMP (JC-21 (1/14))
FL1103 IC1001 AMP (JC-21 (1/14))
FL1104 IC1002 AMP (JC-21 (1/14))
CN1101 (2/4)
MONITOR Y OUT
MONITOR C OUT
PANEL Y
PANEL CR
PANEL CB
VFD VD, VFD HD
OVERALL4 (3-7) D
OVERALL6 (3-11) N

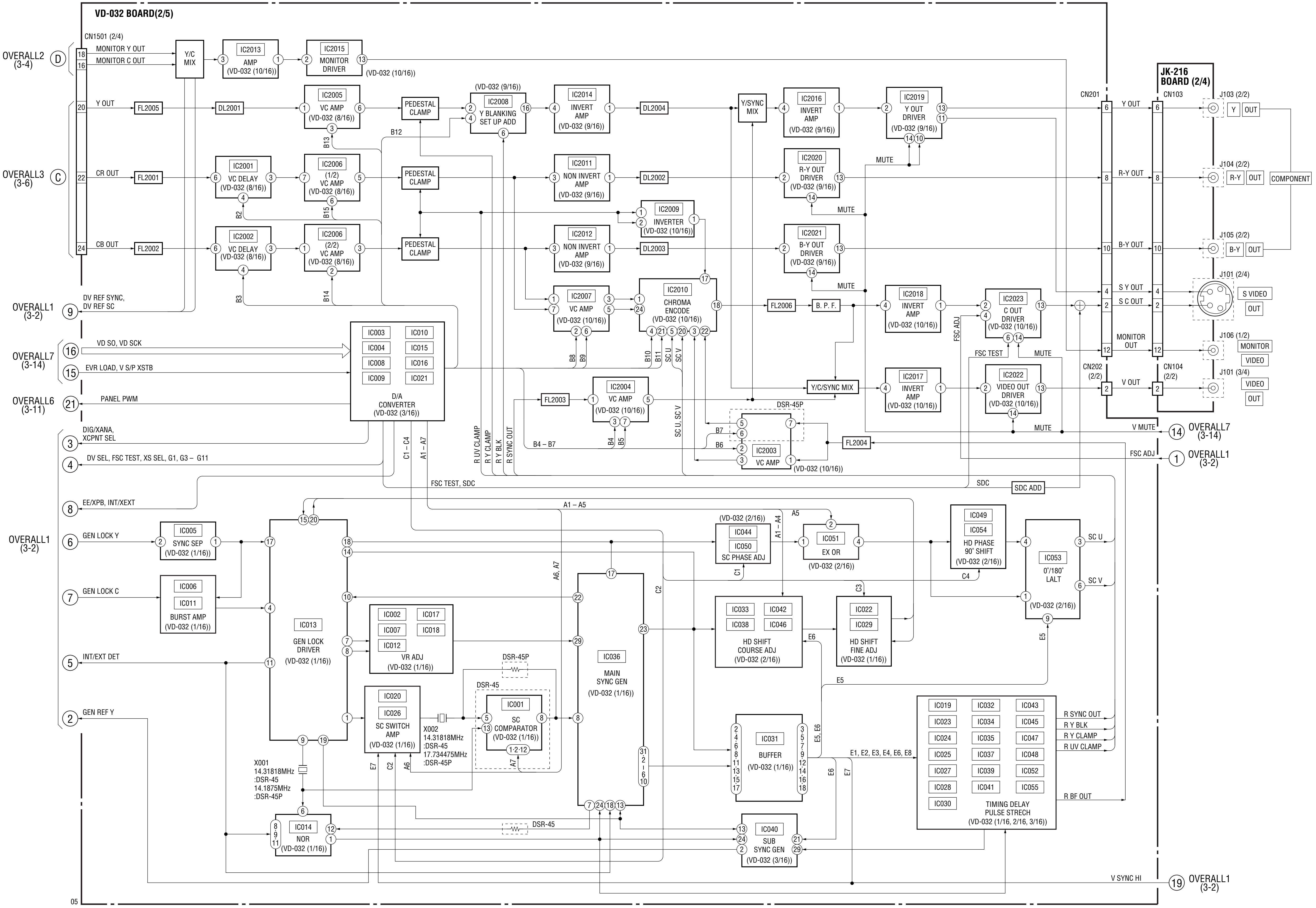
3-3. OVERALL BLOCK DIAGRAM 3

( ): Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


DI-73 BOARD (1/3)
CN9500 (1/5)
MY00 – 07
IC9016
ANALOG SWITCH
(DI-73 (2/9))
IC9014
(DI-73 (2/9))
IC9015
ANALOG SWITCH
(DI-73 (2/9))
Y0 – 7
MY00 – MY07
IC9013
FIFO Y
(DI-73 (2/9))
Y00 – Y07
IC9004
Y SWITCH
(DI-73 (2/9))
DY0 – DY7
IC9000
VIDEO D/A CONVERTER
(DI-73 (1/9))
FL9000
IC9001
AMP
(DI-73 (1/9))
CN9500 (2/5)
DPB YOUT
JC-21 BOARD (2/6)
CN8001 (4/7)
CN1101 (3/4)
Y OUT
OVERALL2 (3-3)
L
JC00 – 07
IC9011
FIFO C
(DI-73 (2/9))
JC0 – JC7
IC9008
CB SWITCH
(DI-73 (2/9))
CB00 – CB07
FL9001
IC9007
AMP
(DI-73 (1/9))
DPB CROUT
CR OUT
C
OVERALL4 (3-7)
IC9012
FIFO CONTROL
(DI-73 (2/9))
MHO
IC9005
IC9009
CR SWITCH
(DI-73 (2/9))
CR0 – CR7
FL9002
IC9010
AMP
(DI-73 (1/9))
DPB CBOUT
CB OUT
27 – 29
PB/XREC
DA135
SPCK2
PAL/XNT
VD-HD
IC9501
IC9502
IC9504
IC9505
IC9507
IC9508
SYNC SHIFTER
(DI-73 (3/9))
IC9500
IC9503
IC9506
IC9509
IC9512
SYNC SHIFTER
(DI-73 (3/9, 4/9))
IC9006
IC9018
IC9019
CB/CR CONTROL
(DI-73 (1/9))
OVERALL2 (3-3)
I
FIFO MUTE
IC9510
IC9511
IC9513
IC9514
IC9515
IC9516
IC9517
Y/C SELECT
(DI-73 (4/9))
IC9518
(DI-73 (1/9))
EE WHDY
IC9519
(DI-73 (1/9))
EE WHDC
AFH
05

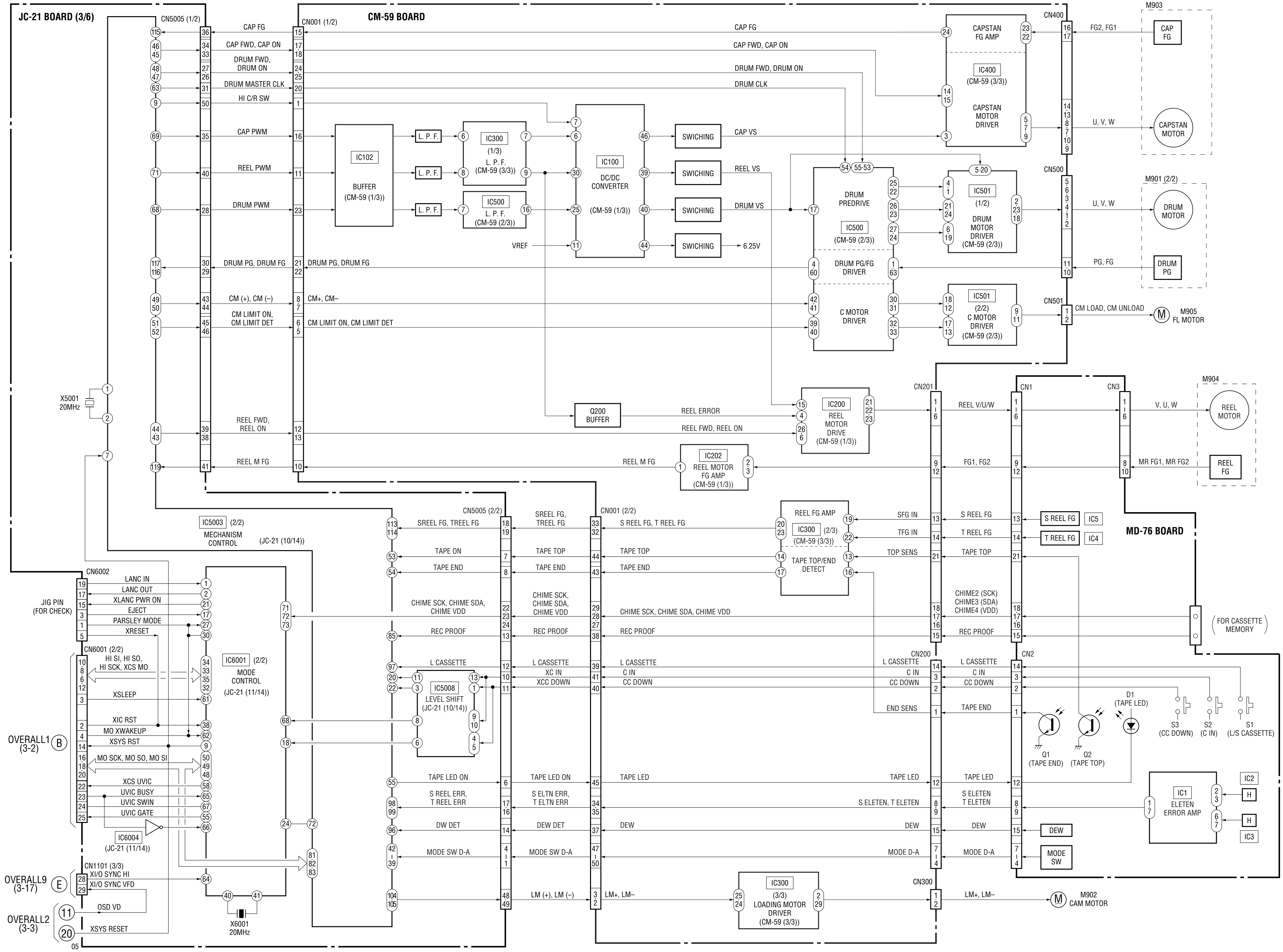
3-4. OVERALL BLOCK DIAGRAM 4

( ): Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


VD-032 BOARD(2/5)
CN1501 (2/4)
OVERALL2 (3-4) D
MONITOR Y OUT
MONITOR C OUT
Y/C MIX
IC2013 AMP (VD-032 (10/16))
IC2015 MONITOR DRIVER (VD-032 (10/16))
OVERALL3 (3-6) C
Y OUT
CR OUT
CB OUT
FL2005
FL2001
FL2002
DL2001
IC2005 VC AMP (VD-032 (8/16))
IC2001 VC DELAY (VD-032 (8/16))
IC2002 VC DELAY (VD-032 (8/16))
IC2006 (1/2) VC AMP (VD-032 (8/16))
IC2006 (2/2) VC AMP (VD-032 (8/16))
PEDESTAL CLAMP
IC2008 Y BLANKING SET UP ADD (VD-032 (9/16))
IC2014 INVERT AMP (VD-032 (9/16))
IC2011 NON INVERT AMP (VD-032 (9/16))
IC2012 NON INVERT AMP (VD-032 (9/16))
IC2009 INVERTER (VD-032 (10/16))
IC2007 VC AMP (VD-032 (10/16))
IC2010 CHROMA ENCODE (VD-032 (10/16))
DL2004
DL2002
DL2003
Y/SYNC MIX
IC2016 INVERT AMP (VD-032 (9/16))
IC2019 Y OUT DRIVER (VD-032 (9/16))
IC2020 R-Y OUT DRIVER (VD-032 (9/16))
IC2021 B-Y OUT DRIVER (VD-032 (9/16))
MUTE
FL2006
B. P. F.
IC2018 INVERT AMP (VD-032 (10/16))
IC2023 C OUT DRIVER (VD-032 (10/16))
Y/C/SYNC MIX
IC2017 INVERT AMP (VD-032 (10/16))
IC2022 VIDEO OUT DRIVER (VD-032 (10/16))
FSC ADJ
FSC TEST
B12 B13 B2 B15 B3 B14 B8 B9 B10 B11 SC U SC V B4 B5 B4 – B7 B6 B7
OVERALL1 (3-2) 9
DV REF SYNC, DV REF SC
OVERALL7 (3-14) 16
VD SO, VD SCK
15
EVR LOAD, V S/P XSTB
OVERALL6 (3-11) 21
PANEL PWM
IC003 IC010 IC004 IC015 IC008 IC016 IC009 IC021
D/A CONVERTER (VD-032 (3/16))
FL2003
IC2004 VC AMP (VD-032 (10/16))
DSR-45P
IC2003 VC AMP (VD-032 (10/16))
FL2004
R UV CLAMP
R Y CLAMP
R Y BLK
R SYNC OUT
SC U, SC V
C1 – C4
A1 – A7
CN201
CN202 (2/2)
JK-216 BOARD (2/4)
CN103
CN104 (2/2)
Y OUT
R-Y OUT
B-Y OUT
S Y OUT
S C OUT
MONITOR OUT
V OUT
J103 (2/2) Y OUT
J104 (2/2) R-Y OUT
J105 (2/2) B-Y OUT
COMPONENT
J101 (2/4) S VIDEO OUT
J106 (1/2) MONITOR VIDEO
J101 (3/4) VIDEO OUT
V MUTE
OVERALL7 (3-14) 14
FSC ADJ
OVERALL1 (3-2) 1
SDC
SDC ADD
OVERALL1 (3-2)
3 DIG/XANA, XCPNT SEL
4 DV SEL, FSC TEST, XS SEL, G1, G3 – G11
8 EE/XPB, INT/XEXT
6 GEN LOCK Y
7 GEN LOCK C
5 INT/EXT DET
2 GEN REF Y
FSC TEST, SDC
A1 – A5
A5
IC005 SYNC SEP (VD-032 (1/16))
IC006 IC011 BURST AMP (VD-032 (1/16))
IC013 GEN LOCK DRIVER (VD-032 (1/16))
IC002 IC017 IC007 IC018 IC012 VR ADJ (VD-032 (1/16))
A6, A7
C2
IC036 MAIN SYNC GEN (VD-032 (1/16))
IC044 IC050 SC PHASE ADJ (VD-032 (2/16))
A1 – A4
C1
IC051 EX OR (VD-032 (2/16))
IC049 IC054 HD PHASE 90° SHIFT (VD-032 (2/16))
C4
IC053 0°/180° LALT (VD-032 (2/16))
SC U
SC V
C3
IC033 IC042 IC038 IC046 HD SHIFT COURSE ADJ (VD-032 (2/16))
IC022 IC029 HD SHIFT FINE ADJ (VD-032 (1/16))
E6
E5
DSR-45P
DSR-45
IC020 IC026 SC SWITCH AMP (VD-032 (1/16))
X002 14.31818MHz :DSR-45 17.734475MHz :DSR-45P
IC001 SC COMPARATOR (VD-032 (1/16))
E7 C2 A6 A7
X001 14.31818MHz :DSR-45 14.1875MHz :DSR-45P
IC014 NOR (VD-032 (1/16))
DSR-45
IC031 BUFFER (VD-032 (1/16))
E5, E6
E6 E7
E1, E2, E3, E4, E6, E8
IC040 SUB SYNC GEN (VD-032 (3/16))
IC019 IC032 IC043 IC023 IC034 IC045 IC024 IC035 IC047 IC025 IC037 IC048 IC027 IC039 IC052 IC028 IC041 IC055 IC030
TIMING DELAY PULSE STRECH (VD-032 (1/16, 2/16, 3/16))
R SYNC OUT
R Y BLK
R Y CLAMP
R UV CLAMP
R BF OUT
V SYNC HI
OVERALL1 (3-2) 19
05

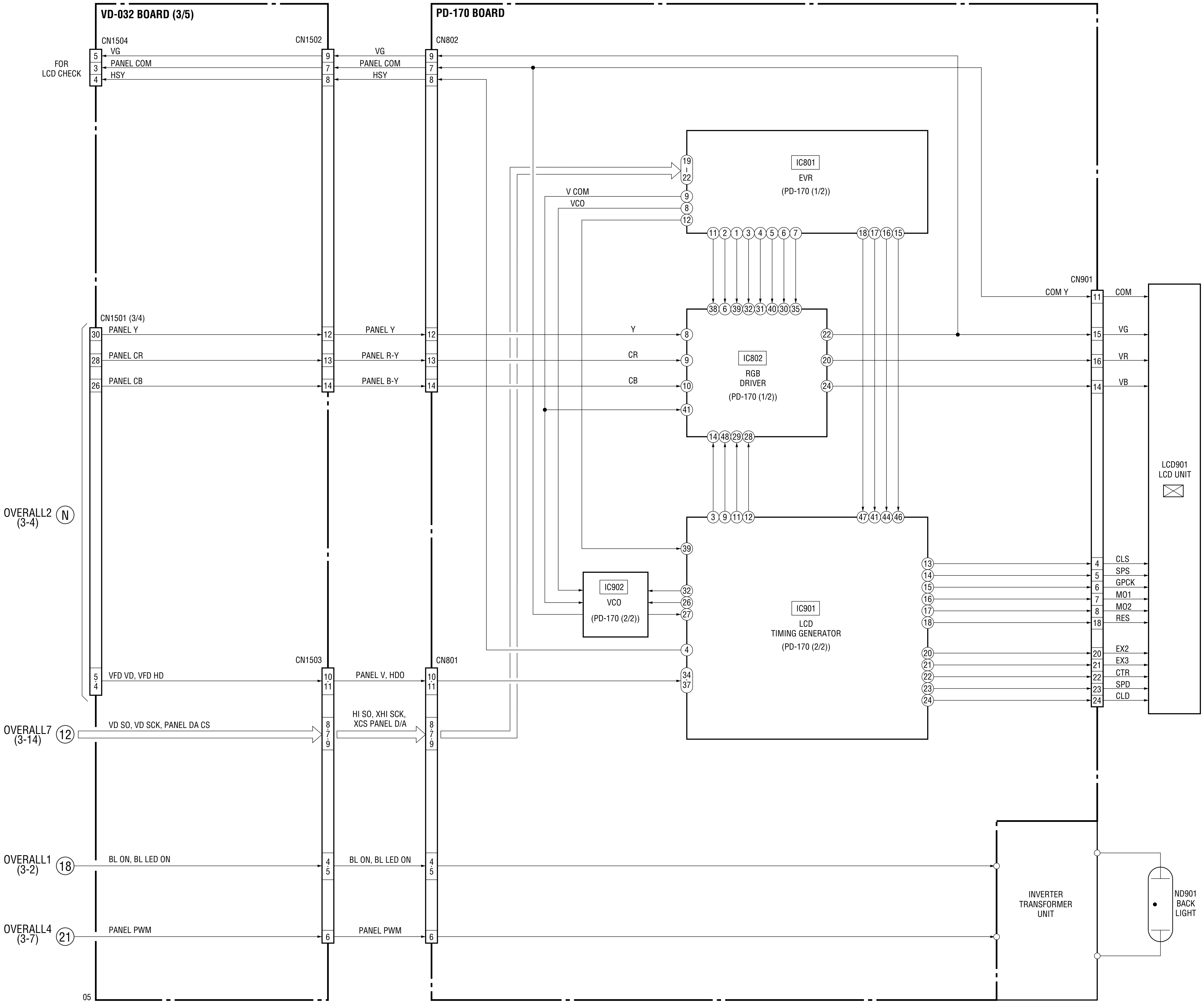
3-5. OVERALL BLOCK DIAGRAM 5

( ): Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


JC-21 BOARD (3/6)
CN5005 (1/2)
CN001 (1/2)
CM-59 BOARD
CAP FG
CAP FWD, CAP ON
DRUM FWD, DRUM ON
DRUM MASTER CLK
DRUM CLK
HI C/R SW
CAP PWM
REEL PWM
DRUM PWM
IC102
BUFFER
(CM-59 (1/3))
L. P. F.
IC300
(1/3)
L. P. F.
(CM-59 (3/3))
IC500
L. P. F.
(CM-59 (2/3))
IC100
DC/DC CONVERTER
(CM-59 (1/3))
VREF
SWICHING
CAP VS
REEL VS
DRUM VS
6.25V
CAPSTAN FG AMP
IC400
(CM-59 (3/3))
CAPSTAN MOTOR DRIVER
CN400
FG2, FG1
M903
CAP FG
U, V, W
CAPSTAN MOTOR
DRUM PREDRIVE
IC500
(CM-59 (2/3))
DRUM PG/FG DRIVER
IC501
(1/2)
DRUM MOTOR DRIVER
(CM-59 (2/3))
CN500
M901 (2/2)
DRUM MOTOR
PG, FG
DRUM PG
DRUM PG, DRUM FG
CM (+), CM (–)
CM+, CM–
CM LIMIT ON, CM LIMIT DET
C MOTOR DRIVER
IC501
(2/2)
C MOTOR DRIVER
(CM-59 (2/3))
CN501
CM LOAD, CM UNLOAD
M905
FL MOTOR
X5001
20MHz
REEL FWD, REEL ON
REEL M FG
Q200
BUFFER
REEL ERROR
REEL FWD, REEL ON
IC200
REEL MOTOR DRIVE
(CM-59 (1/3))
CN201
REEL V/U/W
CN1
CN3
V, U, W
M904
REEL MOTOR
IC202
REEL MOTOR FG AMP
(CM-59 (1/3))
FG1, FG2
MR FG1, MR FG2
REEL FG
CN5005 (2/2)
CN001 (2/2)
IC5003 (2/2)
MECHANISM CONTROL
(JC-21 (10/14))
SREEL FG, TREEL FG
S REEL FG, T REEL FG
REEL FG AMP
IC300 (2/3)
(CM-59 (3/3))
SFG IN
TFG IN
S REEL FG
T REEL FG
IC5
IC4
MD-76 BOARD
TAPE ON
TAPE TOP
TAPE END
TOP SENS
TAPE TOP/END DETECT
CN6002
LANC IN
LANC OUT
XLANC PWR ON
EJECT
PARSLEY MODE
XRESET
JIG PIN
(FOR CHECK)
CHIME SCK, CHIME SDA, CHIME VDD
CHIME2 (SCK)
CHIME3 (SDA)
CHIME4 (VDD)
FOR CASSETTE MEMORY
REC PROOF
CN6001 (2/2)
HI SI, HI SO, HI SCK, XCS MO
IC6001 (2/2)
MODE CONTROL
(JC-21 (11/14))
L CASSETTE
XC IN
C IN
XCC DOWN
CC DOWN
END SENS
CN200
CN2
IC5008
LEVEL SHIFT
(JC-21 (10/14))
XSLEEP
XIC RST
MO XWAKEUP
XSYS RST
MO SCK, MO SO, MO SI
XCS UVIC
UVIC BUSY
UVIC SWIN
UVIC GATE
IC6004
(JC-21 (11/14))
OVERALL1 B (3-2)
D1 (TAPE LED)
Q1 (TAPE END)
Q2 (TAPE TOP)
S3 (CC DOWN)
S2 (C IN)
S1 (L/S CASSETTE)
TAPE LED ON
TAPE LED
S REEL ERR, T REEL ERR
S ELTN ERR, T ELTN ERR
S ELETEN, T ELETEN
S ELETEN T ELETEN
IC1
ELETEN ERROR AMP
IC2
IC3
H
DW DET
DEW DET
DEW
MODE SW D-A
MODE D-A
MODE SW
CN1101 (3/3)
XI/O SYNC HI
XI/O SYNC VFD
OVERALL9 E (3-17)
OSD VD
XSYS RESET
OVERALL2 (3-3)
X6001
20MHz
LM (+), LM (–)
LM+, LM–
IC300
(3/3)
LOADING MOTOR DRIVER
(CM-59 (3/3))
CN300
M902
CAM MOTOR
05

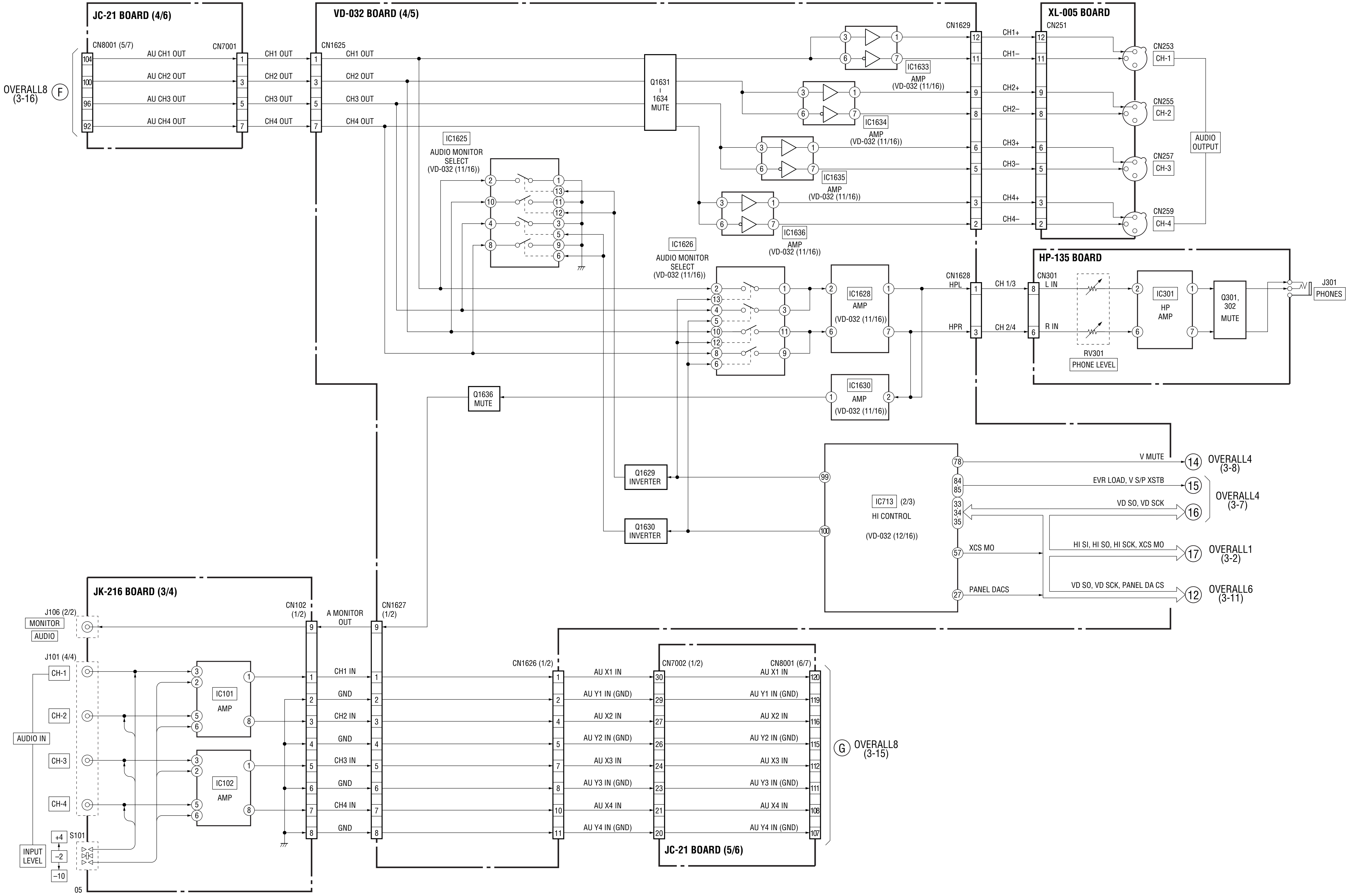
3-6. OVERALL BLOCK DIAGRAM 6

( ): Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


VD-032 BOARD (3/5)
PD-170 BOARD
CN1504
CN1502
CN802
FOR LCD CHECK
VG
PANEL COM
HSY
IC801
EVR
(PD-170 (1/2))
V COM
VCO
CN901
COM Y
COM
CN1501 (3/4)
PANEL Y
PANEL CR
PANEL CB
PANEL R-Y
PANEL B-Y
Y
CR
CB
IC802
RGB DRIVER
(PD-170 (1/2))
VR
VB
LCD901
LCD UNIT
OVERALL2 (3-4)
N
IC902
VCO
(PD-170 (2/2))
IC901
LCD TIMING GENERATOR
(PD-170 (2/2))
CLS
SPS
GPCK
MO1
MO2
RES
EX2
EX3
CTR
SPD
CLD
CN1503
CN801
VFD VD, VFD HD
PANEL V, HDO
OVERALL7 (3-14)
12
VD SO, VD SCK, PANEL DA CS
HI SO, XHI SCK, XCS PANEL D/A
OVERALL1 (3-2)
18
BL ON, BL LED ON
INVERTER TRANSFORMER UNIT
ND901
BACK LIGHT
OVERALL4 (3-7)
21
PANEL PWM
05

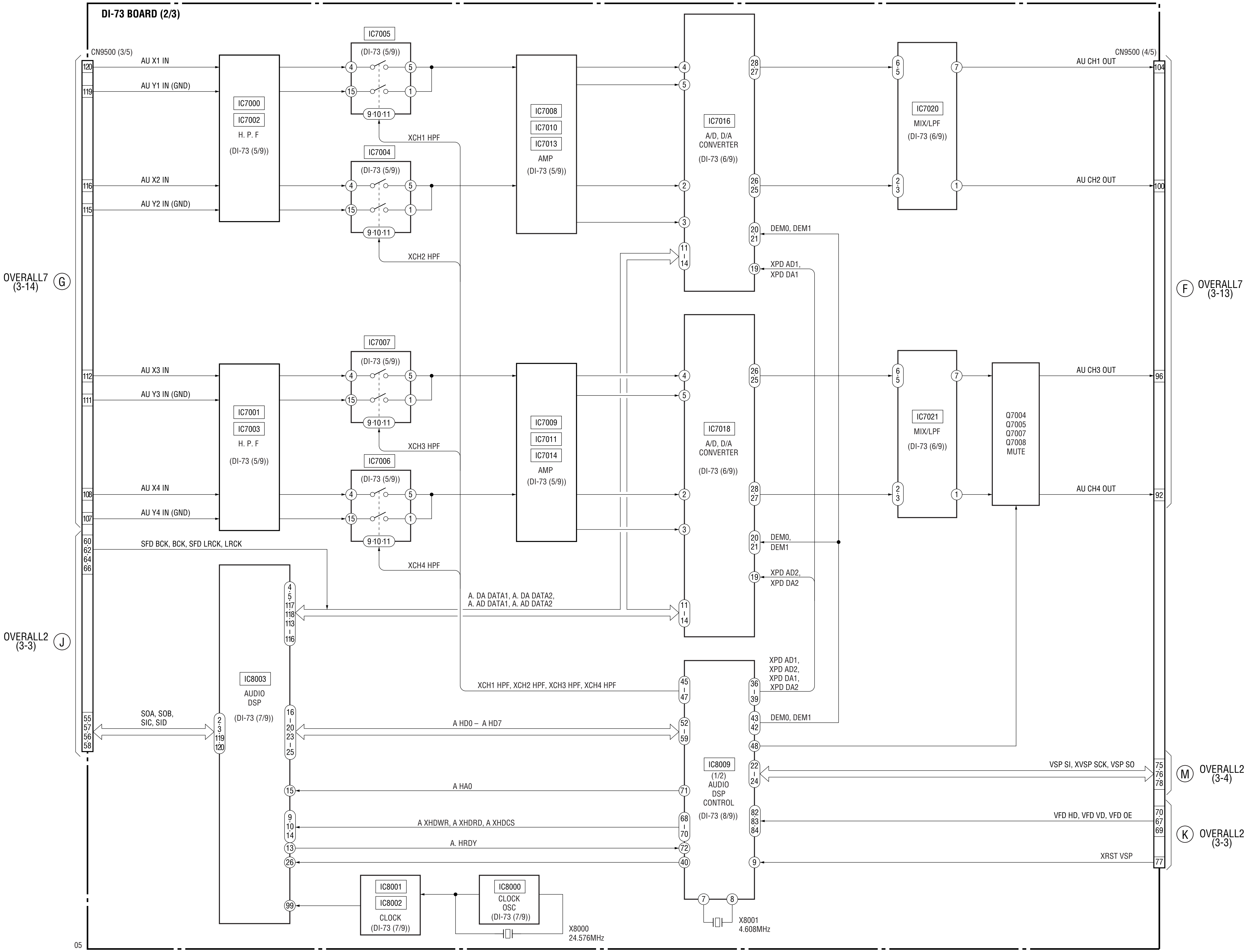
3-7. OVERALL BLOCK DIAGRAM 7

( ): Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


JC-21 BOARD (4/6)
CN8001 (5/7)
CN7001
AU CH1 OUT
AU CH2 OUT
AU CH3 OUT
AU CH4 OUT
104
100
96
92
OVERALL8 F (3-16)
CH1 OUT
CH2 OUT
CH3 OUT
CH4 OUT
VD-032 BOARD (4/5)
CN1625
Q1631 I 1634 MUTE
IC1625 AUDIO MONITOR SELECT (VD-032 (11/16))
IC1626 AUDIO MONITOR SELECT (VD-032 (11/16))
IC1633 AMP (VD-032 (11/16))
IC1634 AMP (VD-032 (11/16))
IC1635 AMP (VD-032 (11/16))
IC1636 AMP (VD-032 (11/16))
CN1629
CH1+
CH1–
CH2+
CH2–
CH3+
CH3–
CH4+
CH4–
XL-005 BOARD
CN251
CN253 CH-1
CN255 CH-2
CN257 CH-3
CN259 CH-4
AUDIO OUTPUT
IC1628 AMP (VD-032 (11/16))
IC1630 AMP (VD-032 (11/16))
CN1628
HPL
HPR
CH 1/3
CH 2/4
HP-135 BOARD
CN301
L IN
R IN
RV301
PHONE LEVEL
IC301 HP AMP
Q301, 302 MUTE
J301 PHONES
Q1636 MUTE
Q1629 INVERTER
Q1630 INVERTER
IC713 (2/3) HI CONTROL (VD-032 (12/16))
V MUTE
14 OVERALL4 (3-8)
EVR LOAD, V S/P XSTB
15
VD SO, VD SCK
16 OVERALL4 (3-7)
XCS MO
HI SI, HI SO, HI SCK, XCS MO
17 OVERALL1 (3-2)
PANEL DACS
VD SO, VD SCK, PANEL DA CS
12 OVERALL6 (3-11)
JK-216 BOARD (3/4)
J106 (2/2)
MONITOR
AUDIO
J101 (4/4)
CH-1
CH-2
CH-3
CH-4
AUDIO IN
S101
+4
–2
–10
INPUT LEVEL
IC101 AMP
IC102 AMP
CN102 (1/2)
A MONITOR OUT
CN1627 (1/2)
CH1 IN
GND
CH2 IN
GND
CH3 IN
GND
CH4 IN
GND
CN1626 (1/2)
AU X1 IN
AU Y1 IN (GND)
AU X2 IN
AU Y2 IN (GND)
AU X3 IN
AU Y3 IN (GND)
AU X4 IN
AU Y4 IN (GND)
CN7002 (1/2)
CN8001 (6/7)
120
119
116
115
112
111
108
107
JC-21 BOARD (5/6)
G OVERALL8 (3-15)
05

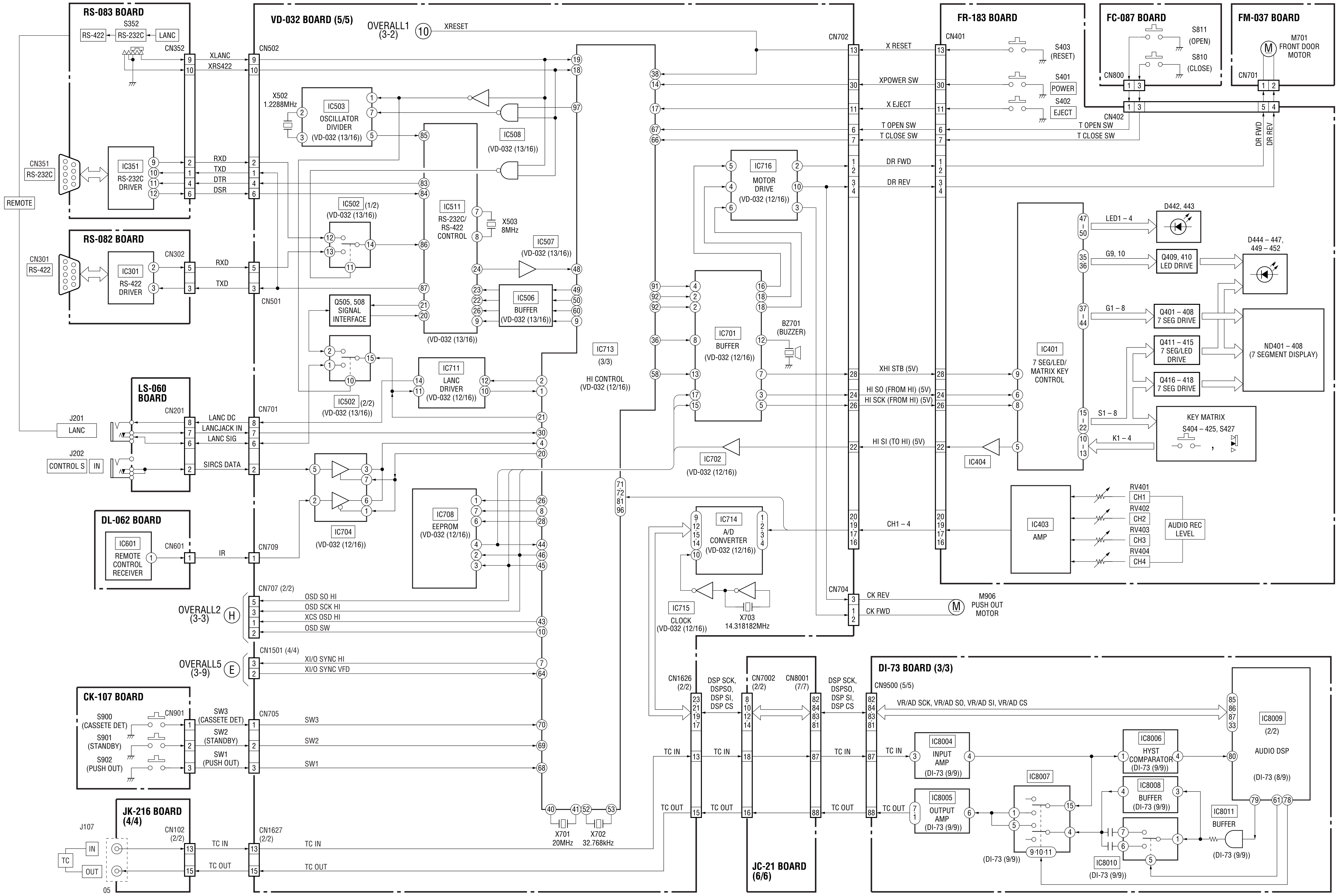
3-8. OVERALL BLOCK DIAGRAM 8

( ): Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


DI-73 BOARD (2/3)
CN9500 (3/5)
AU X1 IN
AU Y1 IN (GND)
AU X2 IN
AU Y2 IN (GND)
AU X3 IN
AU Y3 IN (GND)
AU X4 IN
AU Y4 IN (GND)
120
119
116
115
112
111
108
107
60
62
64
66
55
57
56
58
OVERALL7 (3-14) G
OVERALL2 (3-3) J
IC7000
IC7002
H. P. F
(DI-73 (5/9))
IC7001
IC7003
H. P. F
(DI-73 (5/9))
IC7005
(DI-73 (5/9))
IC7004
(DI-73 (5/9))
IC7007
(DI-73 (5/9))
IC7006
(DI-73 (5/9))
9·10·11
XCH1 HPF
XCH2 HPF
XCH3 HPF
XCH4 HPF
IC7008
IC7010
IC7013
AMP
(DI-73 (5/9))
IC7009
IC7011
IC7014
AMP
(DI-73 (5/9))
IC7016
A/D, D/A
CONVERTER
(DI-73 (6/9))
IC7018
A/D, D/A
CONVERTER
(DI-73 (6/9))
DEM0, DEM1
XPD AD1,
XPD DA1
DEM0,
DEM1
XPD AD2,
XPD DA2
IC7020
MIX/LPF
(DI-73 (6/9))
IC7021
MIX/LPF
(DI-73 (6/9))
Q7004
Q7005
Q7007
Q7008
MUTE
CN9500 (4/5)
AU CH1 OUT
AU CH2 OUT
AU CH3 OUT
AU CH4 OUT
104
100
96
92
OVERALL7 (3-13) F
SFD BCK, BCK, SFD LRCK, LRCK
A. DA DATA1, A. DA DATA2,
A. AD DATA1, A. AD DATA2
IC8003
AUDIO
DSP
(DI-73 (7/9))
SOA, SOB,
SIC, SID
XCH1 HPF, XCH2 HPF, XCH3 HPF, XCH4 HPF
A HD0 – A HD7
A HA0
A XHDWR, A XHDRD, A XHDCS
A. HRDY
IC8009
(1/2)
AUDIO
DSP
CONTROL
(DI-73 (8/9))
XPD AD1,
XPD AD2,
XPD DA1,
XPD DA2
DEM0, DEM1
VSP SI, XVSP SCK, VSP SO
VFD HD, VFD VD, VFD OE
XRST VSP
75
76
78
70
67
69
77
OVERALL2 (3-4) M
OVERALL2 (3-3) K
IC8001
IC8002
CLOCK
(DI-73 (7/9))
IC8000
CLOCK
OSC
(DI-73 (7/9))
X8000
24.576MHz
X8001
4.608MHz
05

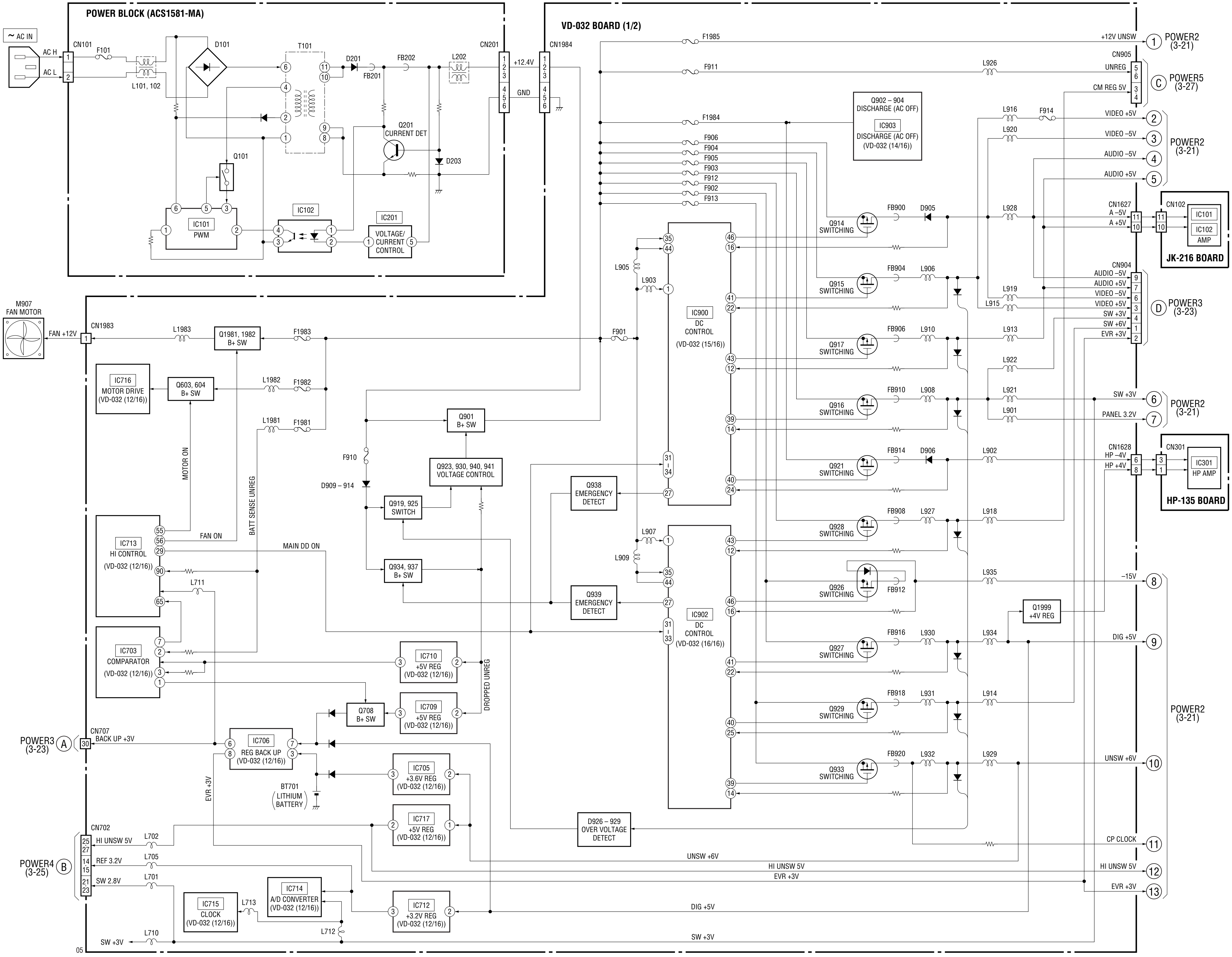
3-9. OVERALL BLOCK DIAGRAM 9

( ): Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


RS-083 BOARD
S352
RS-422
RS-232C
LANC
CN352
XLANC
XRS422
CN351
RS-232C
IC351
RS-232C DRIVER
RXD
TXD
DTR
DSR
REMOTE
RS-082 BOARD
CN301
RS-422
CN302
IC301
RS-422 DRIVER
RXD
TXD
VD-032 BOARD (5/5)
OVERALL1 (3-2)
10
XRESET
CN502
X502 1.2288MHz
IC503
OSCILLATOR DIVIDER (VD-032 (13/16))
IC508
(VD-032 (13/16))
IC511
RS-232C/ RS-422 CONTROL
X503 8MHz
IC507
(VD-032 (13/16))
IC502 (1/2) (VD-032 (13/16))
CN501
Q505, 508 SIGNAL INTERFACE
IC506
BUFFER (VD-032 (13/16))
(VD-032 (13/16))
IC711
LANC DRIVER (VD-032 (12/16))
IC502 (2/2) (VD-032 (13/16))
IC713 (3/3)
HI CONTROL (VD-032 (12/16))
LS-060 BOARD
J201
LANC
CN201
LANC DC
LANCJACK IN
LANC SIG
CN701
J202
CONTROL S
IN
SIRCS DATA
IC704
(VD-032 (12/16))
IC708
EEPROM (VD-032 (12/16))
DL-062 BOARD
IC601
REMOTE CONTROL RECEIVER
CN601
IR
CN709
CN707 (2/2)
OVERALL2 (3-3)
H
OSD SO HI
OSD SCK HI
XCS OSD HI
OSD SW
CN1501 (4/4)
OVERALL5 (3-9)
E
XI/O SYNC HI
XI/O SYNC VFD
CK-107 BOARD
S900 (CASSETE DET)
S901 (STANDBY)
S902 (PUSH OUT)
CN901
SW3 (CASSETE DET)
SW2 (STANDBY)
SW1 (PUSH OUT)
CN705
SW3
SW2
SW1
JK-216 BOARD (4/4)
J107
TC
IN
OUT
05
CN102 (2/2)
TC IN
TC OUT
CN1627 (2/2)
X701 20MHz
X702 32.768kHz
IC716
MOTOR DRIVE (VD-032 (12/16))
IC701
BUFFER (VD-032 (12/16))
BZ701 (BUZZER)
IC702
(VD-032 (12/16))
IC714
A/D CONVERTER (VD-032 (12/16))
IC715
CLOCK (VD-032 (12/16))
X703 14.318182MHz
CN702
X RESET
XPOWER SW
X EJECT
T OPEN SW
T CLOSE SW
DR FWD
DR REV
XHI STB (5V)
HI SO (FROM HI) (5V)
HI SCK (FROM HI) (5V)
HI SI (TO HI) (5V)
CH1 – 4
CN704
CK REV
CK FWD
M906 PUSH OUT MOTOR
FR-183 BOARD
CN401
S403 (RESET)
S401 POWER
S402 EJECT
D442, 443
LED1 – 4
G9, 10
Q409, 410 LED DRIVE
D444 – 447, 449 – 452
G1 – 8
Q401 – 408 7 SEG DRIVE
Q411 – 415 7 SEG/LED DRIVE
Q416 – 418 7 SEG DRIVE
ND401 – 408 (7 SEGMENT DISPLAY)
IC401
7 SEG/LED/ MATRIX KEY CONTROL
S1 – 8
KEY MATRIX
S404 – 425, S427
K1 – 4
IC404
IC403
AMP
RV401 CH1
RV402 CH2
RV403 CH3
RV404 CH4
AUDIO REC LEVEL
FC-087 BOARD
S811 (OPEN)
S810 (CLOSE)
CN800
CN402
FM-037 BOARD
M701 FRONT DOOR MOTOR
CN701
DR FWD
DR REV
CN1626 (2/2)
DSP SCK, DSPSO, DSP SI, DSP CS
CN7002 (2/2)
CN8001 (7/7)
JC-21 BOARD (6/6)
DI-73 BOARD (3/3)
CN9500 (5/5)
VR/AD SCK, VR/AD SO, VR/AD SI, VR/AD CS
IC8004
INPUT AMP (DI-73 (9/9))
IC8005
OUTPUT AMP (DI-73 (9/9))
IC8007
(DI-73 (9/9))
9·10·11
IC8006
HYST COMPARATOR (DI-73 (9/9))
IC8008
BUFFER (DI-73 (9/9))
IC8010 (DI-73 (9/9))
IC8009 (2/2)
AUDIO DSP (DI-73 (8/9))
IC8011
BUFFER (DI-73 (9/9))

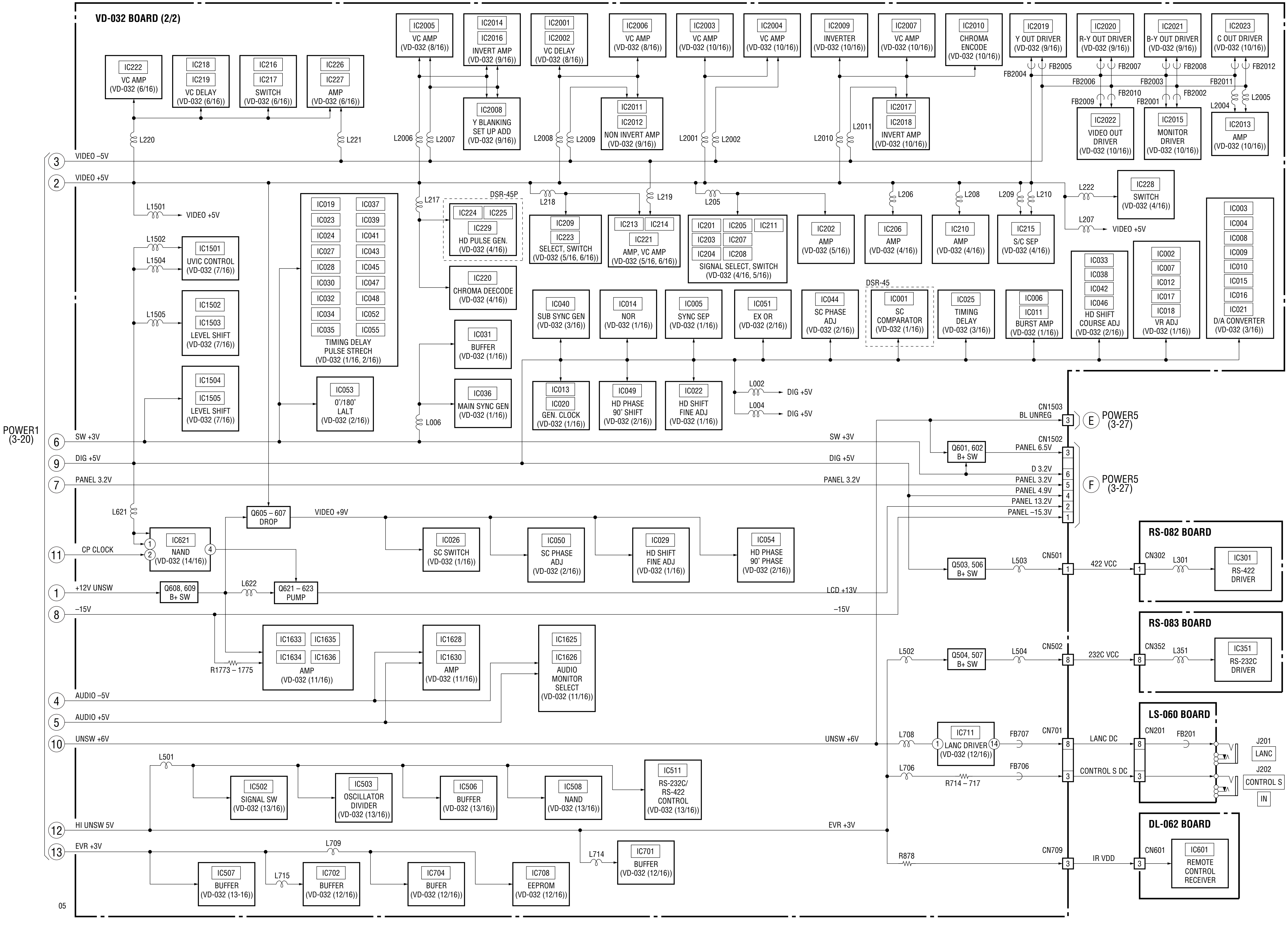
3-10. POWER BLOCK DIAGRAM 1

( ): Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


POWER BLOCK (ACS1581-MA)
~ AC IN
AC H
AC L
CN101
F101
L101, 102
D101
T101
D201
FB201
FB202
L202
CN201
+12.4V
GND
Q201
CURRENT DET
D203
Q101
IC101
PWM
IC102
IC201
VOLTAGE/
CURRENT
CONTROL
VD-032 BOARD (1/2)
CN1984
F1985
F911
F1984
F906
F904
F905
F903
F912
F902
F913
Q902 – 904
DISCHARGE (AC OFF)
IC903
DISCHARGE (AC OFF)
(VD-032 (14/16))
+12V UNSW
POWER2
(3-21)
CN905
UNREG
CM REG 5V
POWER5
(3-27)
L926
L916
F914
L920
VIDEO +5V
VIDEO –5V
AUDIO –5V
AUDIO +5V
FB900
D905
L928
CN1627
A –5V
A +5V
CN102
IC101
IC102
AMP
JK-216 BOARD
Q914
SWITCHING
L905
L903
IC900
DC
CONTROL
(VD-032 (15/16))
FB904
L906
Q915
SWITCHING
CN904
AUDIO –5V
AUDIO +5V
VIDEO –5V
VIDEO +5V
SW +3V
SW +6V
EVR +3V
L919
L915
POWER3
(3-23)
FB906
L910
L913
Q917
SWITCHING
L922
FB910
L908
L921
L901
Q916
SWITCHING
SW +3V
PANEL 3.2V
FB914
D906
L902
CN1628
HP –4V
HP +4V
CN301
IC301
HP AMP
HP-135 BOARD
Q921
SWITCHING
Q938
EMERGENCY
DETECT
FB908
L927
L918
Q928
SWITCHING
L907
L909
IC902
DC
CONTROL
(VD-032 (16/16))
Q926
SWITCHING
FB912
L935
–15V
Q939
EMERGENCY
DETECT
Q1999
+4V REG
FB916
L930
L934
Q927
SWITCHING
DIG +5V
FB918
L931
L914
Q929
SWITCHING
FB920
L932
L929
Q933
SWITCHING
UNSW +6V
D926 – 929
OVER VOLTAGE
DETECT
CP CLOCK
HI UNSW 5V
EVR +3V
M907
FAN MOTOR
FAN +12V
CN1983
L1983
Q1981, 1982
B+ SW
F1983
F901
IC716
MOTOR DRIVE
(VD-032 (12/16))
Q603, 604
B+ SW
L1982
F1982
L1981
F1981
F910
D909 – 914
Q901
B+ SW
Q923, 930, 940, 941
VOLTAGE CONTROL
Q919, 925
SWITCH
Q934, 937
B+ SW
MOTOR ON
BATT SENSE UNREG
IC713
HI CONTROL
(VD-032 (12/16))
FAN ON
MAIN DD ON
L711
IC703
COMPARATOR
(VD-032 (12/16))
IC710
+5V REG
(VD-032 (12/16))
DROPPED UNREG
Q708
B+ SW
IC709
+5V REG
(VD-032 (12/16))
POWER3
(3-23)
CN707
BACK UP +3V
IC706
REG BACK UP
(VD-032 (12/16))
EVR +3V
BT701
LITHIUM
BATTERY
IC705
+3.6V REG
(VD-032 (12/16))
IC717
+5V REG
(VD-032 (12/16))
CN702
HI UNSW 5V
REF 3.2V
SW 2.8V
L702
L705
L701
POWER4
(3-25)
IC714
A/D CONVERTER
(VD-032 (12/16))
IC715
CLOCK
(VD-032 (12/16))
L713
L712
IC712
+3.2V REG
(VD-032 (12/16))
DIG +5V
L710
SW +3V
SW +3V
05

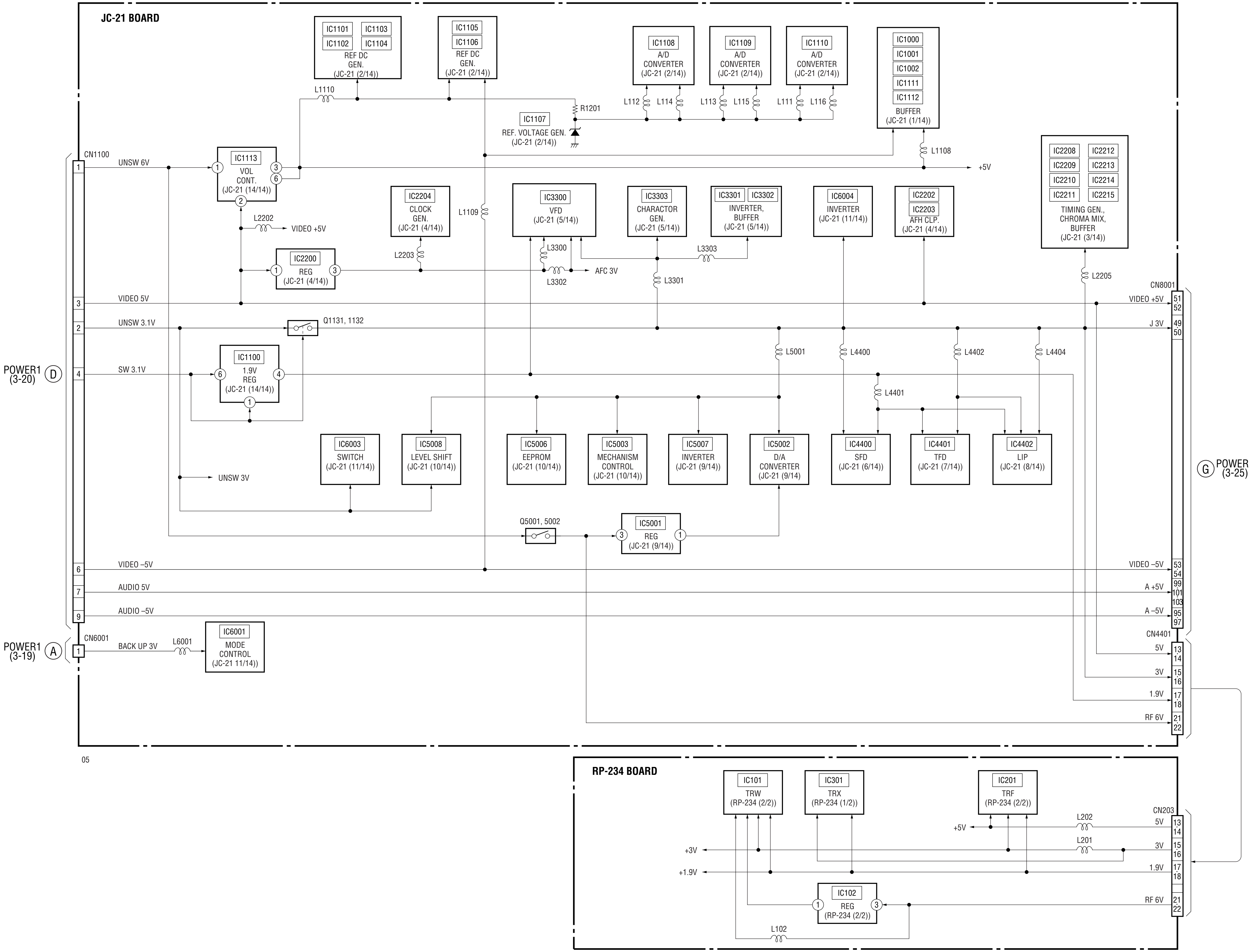
3-11. POWER BLOCK DIAGRAM 2

( ): Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


VD-032 BOARD (2/2)
IC222 VC AMP (VD-032 (6/16))
IC218 IC219 VC DELAY (VD-032 (6/16))
IC216 IC217 SWITCH (VD-032 (6/16))
IC226 IC227 AMP (VD-032 (6/16))
IC2005 VC AMP (VD-032 (8/16))
IC2014 IC2016 INVERT AMP (VD-032 (9/16))
IC2001 IC2002 VC DELAY (VD-032 (8/16))
IC2006 VC AMP (VD-032 (8/16))
IC2003 VC AMP (VD-032 (10/16))
IC2004 VC AMP (VD-032 (10/16))
IC2009 INVERTER (VD-032 (10/16))
IC2007 VC AMP (VD-032 (10/16))
IC2010 CHROMA ENCODE (VD-032 (10/16))
IC2019 Y OUT DRIVER (VD-032 (9/16))
IC2020 R-Y OUT DRIVER (VD-032 (9/16))
IC2021 B-Y OUT DRIVER (VD-032 (9/16))
IC2023 C OUT DRIVER (VD-032 (10/16))
FB2005 FB2007 FB2008 FB2012 FB2004 FB2006 FB2003 FB2011 FB2010 FB2002 FB2009 FB2001 L2004 L2005
IC2008 Y BLANKING SET UP ADD (VD-032 (9/16))
IC2011 IC2012 NON INVERT AMP (VD-032 (9/16))
IC2017 IC2018 INVERT AMP (VD-032 (10/16))
IC2022 VIDEO OUT DRIVER (VD-032 (10/16))
IC2015 MONITOR DRIVER (VD-032 (10/16))
IC2013 AMP (VD-032 (10/16))
L220 L221 L2006 L2007 L2008 L2009 L2001 L2002 L2010 L2011
POWER1 (3-20)
3 VIDEO –5V
2 VIDEO +5V
L1501 VIDEO +5V
L1502 L1504 IC1501 UVIC CONTROL (VD-032 (7/16))
L1505 IC1502 IC1503 LEVEL SHIFT (VD-032 (7/16))
IC1504 IC1505 LEVEL SHIFT (VD-032 (7/16))
IC019 IC037 IC023 IC039 IC024 IC041 IC027 IC043 IC028 IC045 IC030 IC047 IC032 IC048 IC034 IC052 IC035 IC055 TIMING DELAY PULSE STRECH (VD-032 (1/16, 2/16))
IC053 0°/180° LALT (VD-032 (2/16))
L217 DSR-45P IC224 IC225 IC229 HD PULSE GEN. (VD-032 (4/16))
IC220 CHROMA DEECODE (VD-032 (4/16))
IC031 BUFFER (VD-032 (1/16))
IC036 MAIN SYNC GEN (VD-032 (1/16))
L006
L218 L219 L205
IC209 IC223 SELECT, SWITCH (VD-032 (5/16, 6/16))
IC213 IC214 IC221 AMP, VC AMP (VD-032 (5/16, 6/16))
IC201 IC205 IC211 IC203 IC207 IC204 IC208 SIGNAL SELECT, SWITCH (VD-032 (4/16, 5/16))
IC202 AMP (VD-032 (5/16))
L206 IC206 AMP (VD-032 (4/16))
L208 IC210 AMP (VD-032 (4/16))
L209 L210 IC215 S/C SEP (VD-032 (4/16))
L222 IC228 SWITCH (VD-032 (4/16))
L207 VIDEO +5V
IC033 IC038 IC042 IC046 HD SHIFT COURSE ADJ (VD-032 (2/16))
IC002 IC007 IC012 IC017 IC018 VR ADJ (VD-032 (1/16))
IC003 IC004 IC008 IC009 IC010 IC015 IC016 IC021 D/A CONVERTER (VD-032 (3/16))
IC040 SUB SYNC GEN (VD-032 (3/16))
IC014 NOR (VD-032 (1/16))
IC005 SYNC SEP (VD-032 (1/16))
IC051 EX OR (VD-032 (2/16))
IC044 SC PHASE ADJ (VD-032 (2/16))
DSR-45 IC001 SC COMPARATOR (VD-032 (1/16))
IC025 TIMING DELAY (VD-032 (3/16))
IC006 IC011 BURST AMP (VD-032 (1/16))
IC013 IC020 GEN. CLOCK (VD-032 (1/16))
IC049 HD PHASE 90° SHIFT (VD-032 (2/16))
IC022 HD SHIFT FINE ADJ (VD-032 (1/16))
L002 DIG +5V
L004 DIG +5V
CN1503 BL UNREG 3
POWER5 (3-27) E
6 SW +3V
9 DIG +5V
7 PANEL 3.2V
SW +3V DIG +5V PANEL 3.2V
Q601, 602 B+ SW
CN1502 PANEL 6.5V 3
D 3.2V 6
PANEL 3.2V 5
PANEL 4.9V 4
PANEL 13.2V 2
PANEL –15.3V 1
POWER5 (3-27) F
L621
Q605 – 607 DROP
VIDEO +9V
IC026 SC SWITCH (VD-032 (1/16))
IC050 SC PHASE ADJ (VD-032 (2/16))
IC029 HD SHIFT FINE ADJ (VD-032 (1/16))
IC054 HD PHASE 90° PHASE (VD-032 (2/16))
11 CP CLOCK
IC621 NAND (VD-032 (14/16)) 1 2 4
1 +12V UNSW
Q608, 609 B+ SW
L622
Q621 – 623 PUMP
LCD +13V
8 –15V
–15V
Q503, 506 B+ SW
L503 CN501 1 422 VCC
RS-082 BOARD
CN302 1 L301 IC301 RS-422 DRIVER
IC1633 IC1635 IC1634 IC1636 AMP (VD-032 (11/16))
R1773 – 1775
IC1628 IC1630 AMP (VD-032 (11/16))
IC1625 IC1626 AUDIO MONITOR SELECT (VD-032 (11/16))
4 AUDIO –5V
5 AUDIO +5V
L502 Q504, 507 B+ SW L504 CN502 8 232C VCC
RS-083 BOARD
CN352 8 L351 IC351 RS-232C DRIVER
10 UNSW +6V
UNSW +6V
L708 IC711 LANC DRIVER (VD-032 (12/16)) 1 14
FB707 CN701 8 LANC DC
L706 R714 – 717 FB706 3 CONTROL S DC
LS-060 BOARD
CN201 8 3 FB201
J201 LANC
J202 CONTROL S IN
L501
IC502 SIGNAL SW (VD-032 (13/16))
IC503 OSCILLATOR DIVIDER (VD-032 (13/16))
IC506 BUFFER (VD-032 (13/16))
IC508 NAND (VD-032 (13/16))
IC511 RS-232C/ RS-422 CONTROL (VD-032 (13/16))
12 HI UNSW 5V
EVR +3V
13 EVR +3V
L709 L714
IC701 BUFFER (VD-032 (12/16))
R878 CN709 3 IR VDD
DL-062 BOARD
CN601 3 IC601 REMOTE CONTROL RECEIVER
L715
IC507 BUFFER (VD-032 (13-16))
IC702 BUFFER (VD-032 (12/16))
IC704 BUFER (VD-032 (12/16))
IC708 EEPROM (VD-032 (12/16))
05

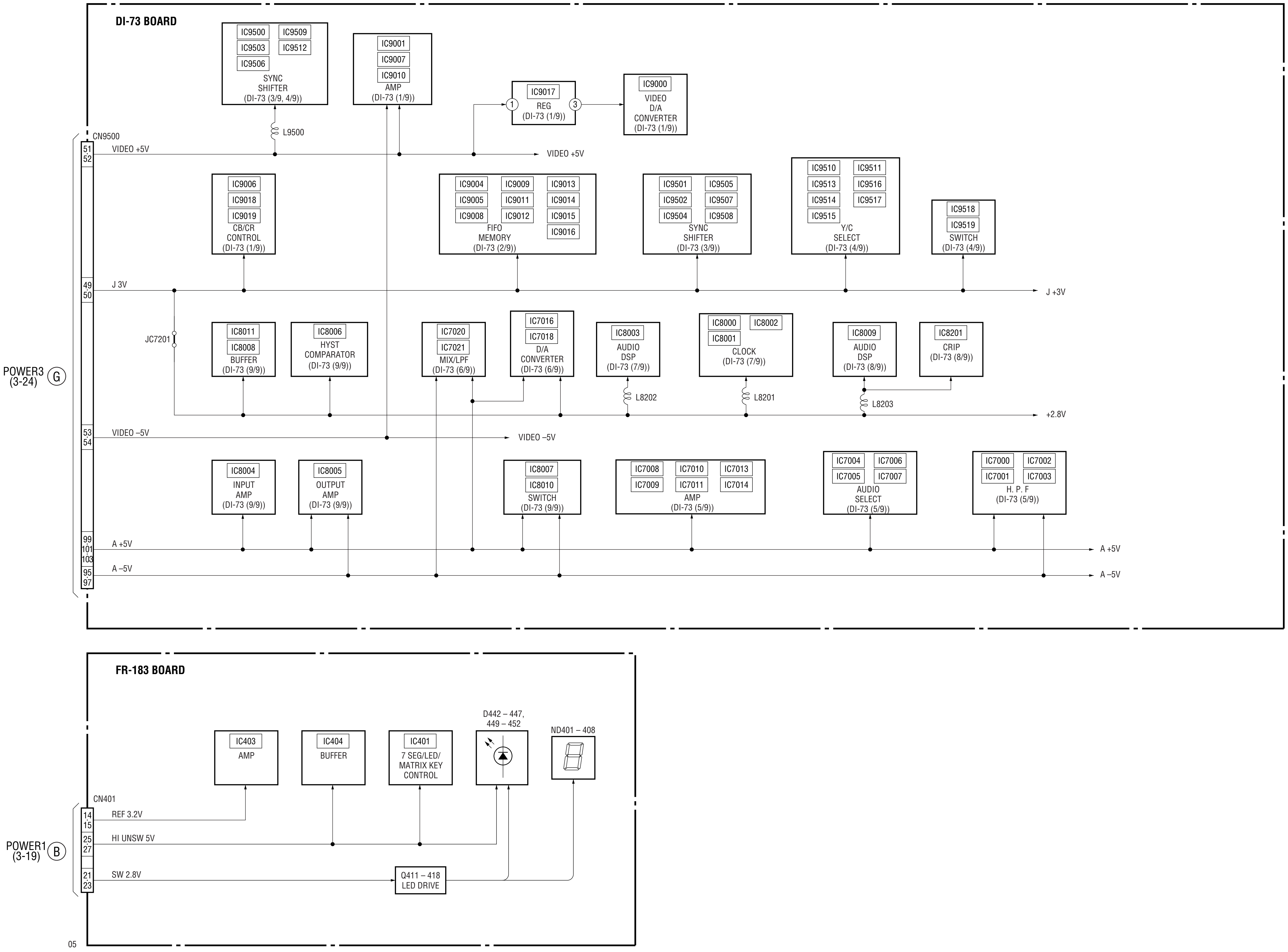
3-12. POWER BLOCK DIAGRAM 3

( ): Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


JC-21 BOARD
IC1101
IC1103
IC1102
IC1104
REF DC GEN. (JC-21 (2/14))
IC1105
IC1106
REF DC GEN. (JC-21 (2/14))
IC1108
A/D CONVERTER (JC-21 (2/14))
IC1109
A/D CONVERTER (JC-21 (2/14))
IC1110
A/D CONVERTER (JC-21 (2/14))
IC1000
IC1001
IC1002
IC1111
IC1112
BUFFER (JC-21 (1/14))
L1110
R1201
IC1107
REF. VOLTAGE GEN. (JC-21 (2/14))
L112
L114
L113
L115
L111
L116
L1108
+5V
CN1100
UNSW 6V
IC1113
VOL CONT. (JC-21 (14/14))
L2202
VIDEO +5V
IC2204
CLOCK GEN. (JC-21 (4/14))
L1109
IC3300
VFD (JC-21 (5/14))
IC3303
CHARACTOR GEN. (JC-21 (5/14))
IC3301
IC3302
INVERTER, BUFFER (JC-21 (5/14))
IC6004
INVERTER (JC-21 (11/14))
IC2202
IC2203
AFH CLP. (JC-21 (4/14))
IC2208
IC2212
IC2209
IC2213
IC2210
IC2214
IC2211
IC2215
TIMING GEN., CHROMA MIX, BUFFER (JC-21 (3/14))
IC2200
REG (JC-21 (4/14))
L2203
L3300
L3302
AFC 3V
L3303
L3301
L2205
CN8001
VIDEO 5V
VIDEO +5V
UNSW 3.1V
Q1131, 1132
J 3V
POWER1 (3-20) D
SW 3.1V
IC1100
1.9V REG (JC-21 (14/14))
L5001
L4400
L4402
L4404
L4401
IC6003
SWITCH (JC-21 (11/14))
IC5008
LEVEL SHIFT (JC-21 (10/14))
IC5006
EEPROM (JC-21 (10/14))
IC5003
MECHANISM CONTROL (JC-21 (10/14))
IC5007
INVERTER (JC-21 (9/14))
IC5002
D/A CONVERTER (JC-21 (9/14)
IC4400
SFD (JC-21 (6/14))
IC4401
TFD (JC-21 (7/14))
IC4402
LIP (JC-21 (8/14))
UNSW 3V
POWER4 (3-25) G
Q5001, 5002
IC5001
REG (JC-21 (9/14))
VIDEO –5V
AUDIO 5V
A +5V
AUDIO –5V
A –5V
CN6001
BACK UP 3V
L6001
IC6001
MODE CONTROL (JC-21 11/14))
POWER1 (3-19) A
CN4401
5V
3V
1.9V
RF 6V
05
RP-234 BOARD
IC101
TRW (RP-234 (2/2))
IC301
TRX (RP-234 (1/2))
IC201
TRF (RP-234 (2/2))
CN203
L202
+5V
L201
+3V
+1.9V
IC102
REG (RP-234 (2/2))
L102

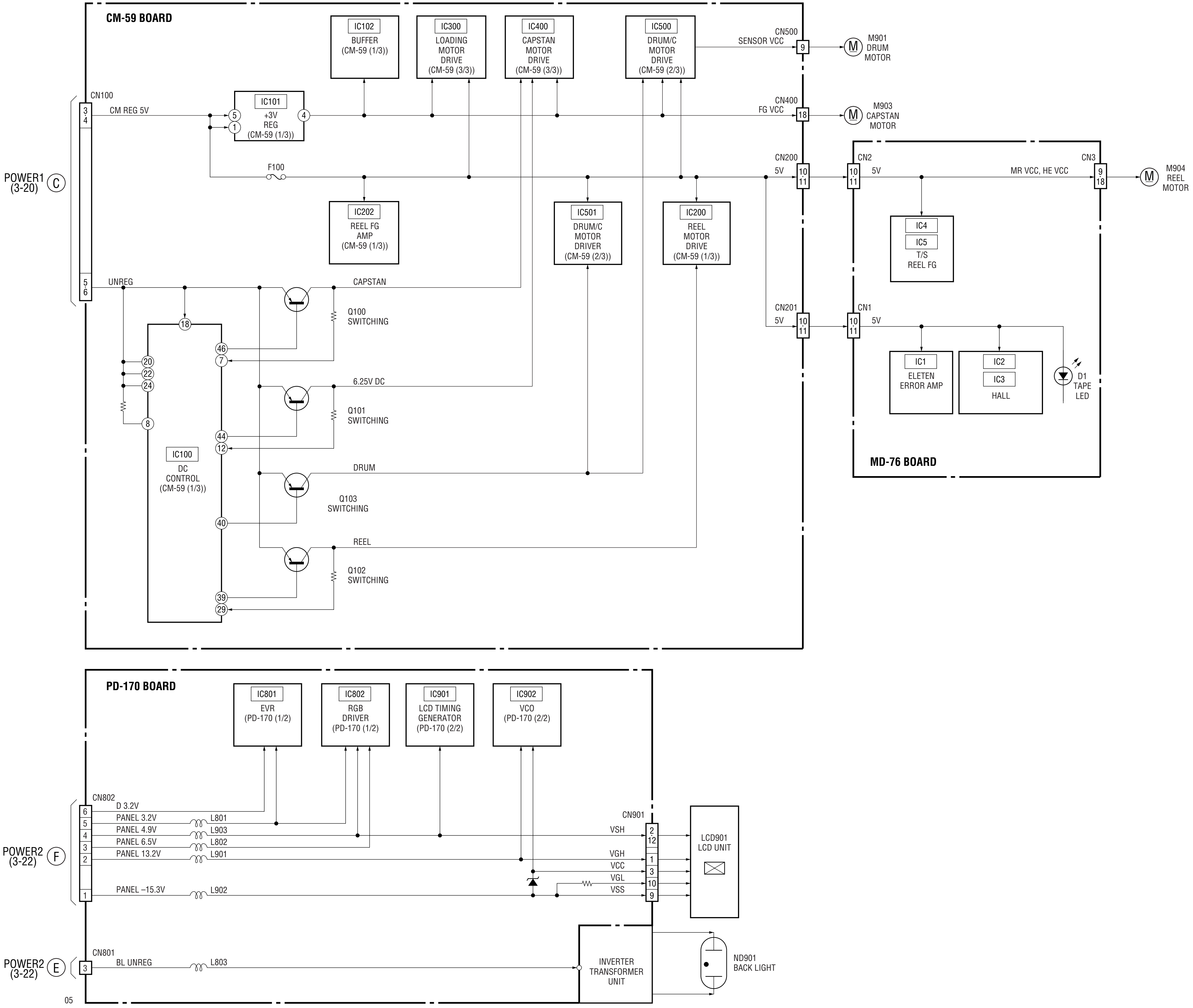
3-13. POWER BLOCK DIAGRAM 4

( ): Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


DI-73 BOARD
IC9500 IC9509 IC9503 IC9512 IC9506 SYNC SHIFTER (DI-73 (3/9, 4/9))
IC9001 IC9007 IC9010 AMP (DI-73 (1/9))
IC9017 REG (DI-73 (1/9))
1
3
IC9000 VIDEO D/A CONVERTER (DI-73 (1/9))
L9500
CN9500
51 52 VIDEO +5V
VIDEO +5V
IC9006 IC9018 IC9019 CB/CR CONTROL (DI-73 (1/9))
IC9004 IC9009 IC9013 IC9005 IC9011 IC9014 IC9008 IC9012 IC9015 IC9016 FIFO MEMORY (DI-73 (2/9))
IC9501 IC9505 IC9502 IC9507 IC9504 IC9508 SYNC SHIFTER (DI-73 (3/9))
IC9510 IC9511 IC9513 IC9516 IC9514 IC9517 IC9515 Y/C SELECT (DI-73 (4/9))
IC9518 IC9519 SWITCH (DI-73 (4/9))
49 50 J 3V
J +3V
JC7201
IC8011 IC8008 BUFFER (DI-73 (9/9))
IC8006 HYST COMPARATOR (DI-73 (9/9))
IC7020 IC7021 MIX/LPF (DI-73 (6/9))
IC7016 IC7018 D/A CONVERTER (DI-73 (6/9))
IC8003 AUDIO DSP (DI-73 (7/9))
IC8000 IC8002 IC8001 CLOCK (DI-73 (7/9))
IC8009 AUDIO DSP (DI-73 (8/9))
IC8201 CRIP (DI-73 (8/9))
L8202
L8201
L8203
+2.8V
POWER3 (3-24) G
53 54 VIDEO –5V
VIDEO –5V
IC8004 INPUT AMP (DI-73 (9/9))
IC8005 OUTPUT AMP (DI-73 (9/9))
IC8007 IC8010 SWITCH (DI-73 (9/9))
IC7008 IC7010 IC7013 IC7009 IC7011 IC7014 AMP (DI-73 (5/9))
IC7004 IC7006 IC7005 IC7007 AUDIO SELECT (DI-73 (5/9))
IC7000 IC7002 IC7001 IC7003 H. P. F (DI-73 (5/9))
99 101 103 A +5V
A +5V
95 97 A –5V
A –5V
FR-183 BOARD
IC403 AMP
IC404 BUFFER
IC401 7 SEG/LED/ MATRIX KEY CONTROL
D442 – 447, 449 – 452
ND401 – 408
CN401
14 15 REF 3.2V
25 27 HI UNSW 5V
21 23 SW 2.8V
POWER1 (3-19) B
Q411 – 418 LED DRIVE
05

3-14. POWER BLOCK DIAGRAM 5

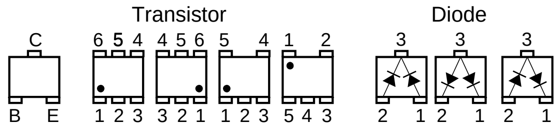
( ): Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.


CM-59 BOARD
IC102 BUFFER (CM-59 (1/3))
IC300 LOADING MOTOR DRIVE (CM-59 (3/3))
IC400 CAPSTAN MOTOR DRIVE (CM-59 (3/3))
IC500 DRUM/C MOTOR DRIVE (CM-59 (2/3))
CN500 SENSOR VCC 9
M901 DRUM MOTOR
CN100 3 4 CM REG 5V
IC101 +3V REG (CM-59 (1/3)) 5 1 4
CN400 FG VCC 18
M903 CAPSTAN MOTOR
POWER1 (3-20) C
F100
CN200 5V 10 11
IC202 REEL FG AMP (CM-59 (1/3))
IC501 DRUM/C MOTOR DRIVER (CM-59 (2/3))
IC200 REEL MOTOR DRIVE (CM-59 (1/3))
5 6 UNREG
CAPSTAN
Q100 SWITCHING
18 46 7 20 22 24 8
6.25V DC
Q101 SWITCHING
44 12
IC100 DC CONTROL (CM-59 (1/3))
DRUM
Q103 SWITCHING
40
REEL
Q102 SWITCHING
39 29
CN201 5V 10 11
CN2 10 11 5V
MR VCC, HE VCC
CN3 9 18
M904 REEL MOTOR
IC4 IC5 T/S REEL FG
CN1 10 11 5V
IC1 ELETEN ERROR AMP
IC2 IC3 HALL
D1 TAPE LED
MD-76 BOARD
PD-170 BOARD
IC801 EVR (PD-170 (1/2))
IC802 RGB DRIVER (PD-170 (1/2))
IC901 LCD TIMING GENERATOR (PD-170 (2/2))
IC902 VCO (PD-170 (2/2))
CN802
6 D 3.2V
5 PANEL 3.2V L801
4 PANEL 4.9V L903
3 PANEL 6.5V L802
2 PANEL 13.2V L901
1 PANEL –15.3V L902
POWER2 (3-22) F
CN901
VSH 2 12
VGH 1
VCC 3
VGL 10
VSS 9
LCD901 LCD UNIT
CN801
3 BL UNREG L803
POWER2 (3-22) E
INVERTER TRANSFORMER UNIT
ND901 BACK LIGHT
05

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block)

For printed wiring boards:
- LF : Uses unleaded solder.
- ▒ : Pattern from the side which enables seeing.
  (The other layers' pattern are not indicated)
- Circled numbers refer to waveforms.
- Through hole is omitted.
- There are a few cases that the part printed on diagram isn't mounted in this model.
- Chip parts.



For schematic Diagram:
- All capacitors are in μF unless otherwise noted. pF : μμF 50V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10 W unless otherwise noted.
  kΩ : 1000Ω, MΩ : 1000kΩ.
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- Some chip part will be indicated as follows.

Example C 541 L 452
22U 10UH
TA A 2520
Kinds of capacitor → TA
Temperature characteristics → A
External dimensions (mm) → 2520

- Constants of resistors, capasitors, ICs and etc with XX indicate that they are not used. In such cases, the unused circuits may be indicated.
- Parts with ★ differ according to the model/destination. Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
  XEDIT → $\overline{\text{EDIT}}$ PB/XREC → PB/$\overline{\text{REC}}$
- ⊟ : nonflammable resistor.
- ⌇ : fusible resistor.
- ▭ : panel designation.
- ━━ : B+ Line.*
- ▬ ▬ ▬ : B– Line.*
- ⇨ : IN/OUT direction of B line (+, –).*
- ▭ : adjustment for repair.*
- Circled numbers refer to waveforms.*

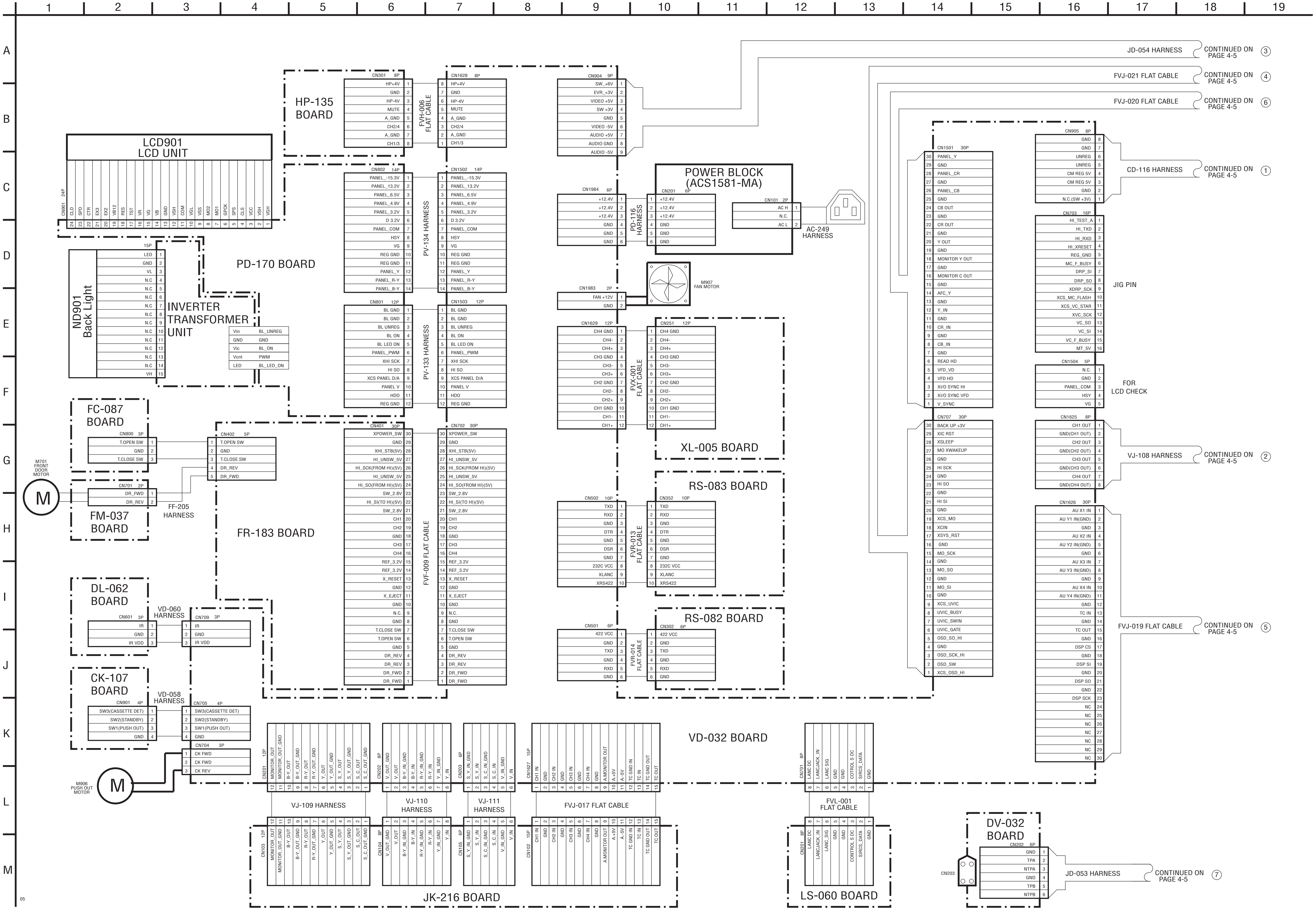
Measuring conditions voltege and waveform:
- Voltages and waveforms are measured between the measurement points and graound when color bar signal input.They are reference values and reference waveforms.*
  (VOM of DC 10 MΩ input impedance is used)
- Voltage values change depending upon input impedance of VOM used.

* Indicated by the color red.

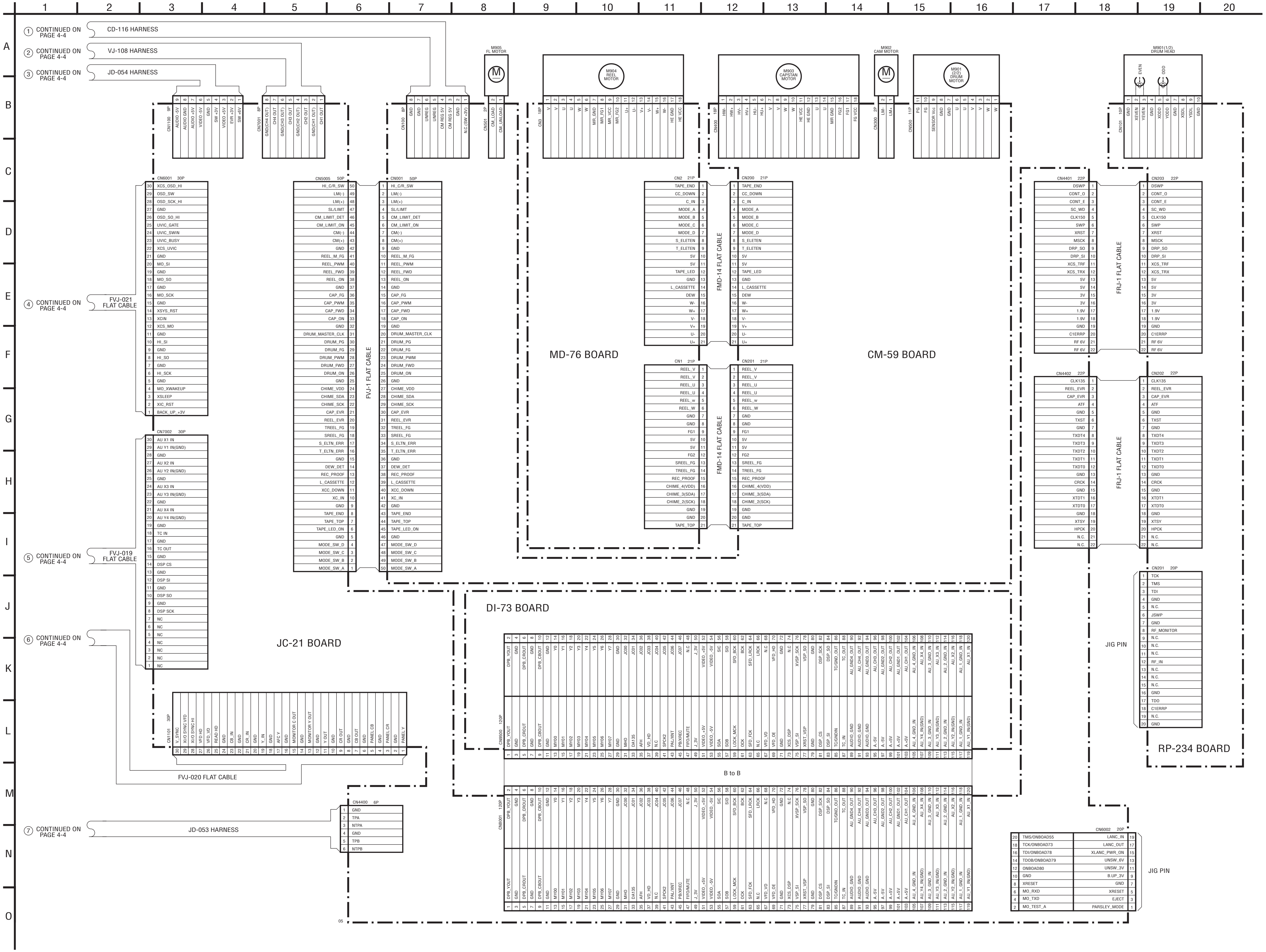
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	**Note:** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

4-1. FRAME SCHEMATIC DIAGRAM (1/2)

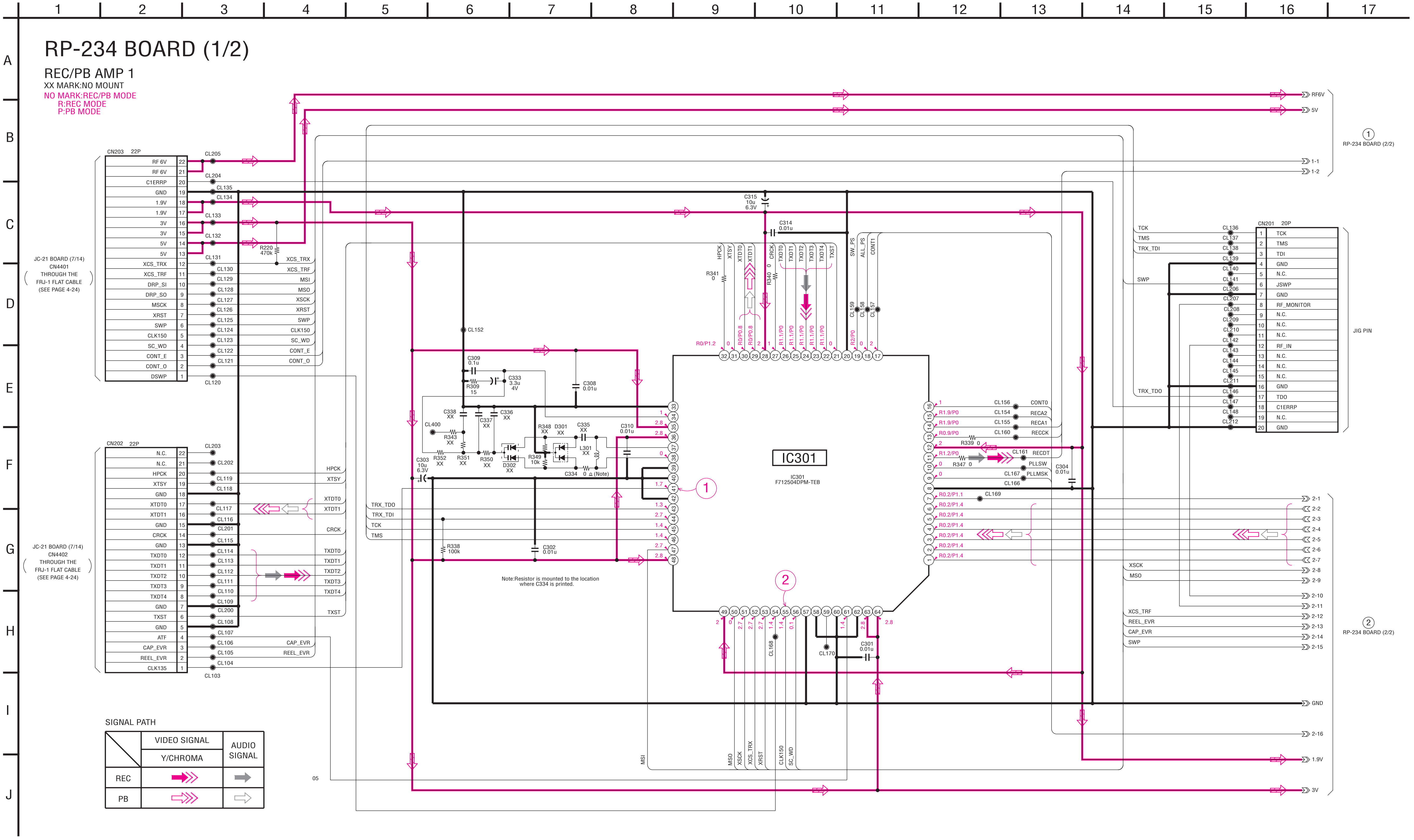

LCD901
LCD UNIT
CN901 24P
ND901
Back Light
INVERTER
TRANSFORMER
UNIT
PD-170 BOARD
HP-135
BOARD
CN301 8P
FVH-006
FLAT CABLE
CN1628 8P
CN904 9P
CN802 14P
PV-134 HARNESS
CN1502 14P
CN801 12P
PV-133 HARNESS
CN1503 12P
CN1984 6P
PD-116
HARNESS
POWER BLOCK
(ACS1581-MA)
CN201 6P
CN101 2P
AC-249
HARNESS
M907
FAN MOTOR
CN1983 2P
CN1629 12P
FVX-001
FLAT CABLE
CN251 12P
XL-005 BOARD
RS-083 BOARD
CN502 10P
FVR-013
FLAT CABLE
CN352 10P
RS-082 BOARD
CN501 6P
FVR-014
FLAT CABLE
CN302 6P
FC-087
BOARD
CN800 3P
CN402 5P
M701
FRONT
DOOR
MOTOR
CN701 2P
FM-037
BOARD
FF-205
HARNESS
FR-183 BOARD
CN401 30P
FVF-009 FLAT CABLE
CN702 30P
DL-062
BOARD
CN601 3P
VD-060
HARNESS
CN709 3P
CK-107
BOARD
CN901 4P
VD-058
HARNESS
CN705 4P
CN704 3P
M906
PUSH OUT
MOTOR
CN1501 30P
CN707 30P
CN905 8P
CD-116 HARNESS
CN703 16P
JIG PIN
CN1504 5P
FOR
LCD CHECK
CN1625 8P
VJ-108 HARNESS
CN1626 30P
FVJ-019 FLAT CABLE
JD-054 HARNESS
CONTINUED ON PAGE 4-5 ③
FVJ-021 FLAT CABLE
CONTINUED ON PAGE 4-5 ④
FVJ-020 FLAT CABLE
CONTINUED ON PAGE 4-5 ⑥
CONTINUED ON PAGE 4-5 ①
CONTINUED ON PAGE 4-5 ②
CONTINUED ON PAGE 4-5 ⑤
VD-032 BOARD
CN201 12P
CN202 8P
CN203 6P
CN1627 15P
CN1701 8P
VJ-109 HARNESS
VJ-110
HARNESS
VJ-111
HARNESS
FVJ-017 FLAT CABLE
FVL-001
FLAT CABLE
CN103 12P
CN104 8P
CN105 6P
CN102 15P
JK-216 BOARD
CN201 8P
LS-060 BOARD
DV-032
BOARD
CN202 6P
CN203
JD-053 HARNESS
CONTINUED ON PAGE 4-5 ⑦
05

FRAME SCHEMATIC DIAGRAM (2/2)

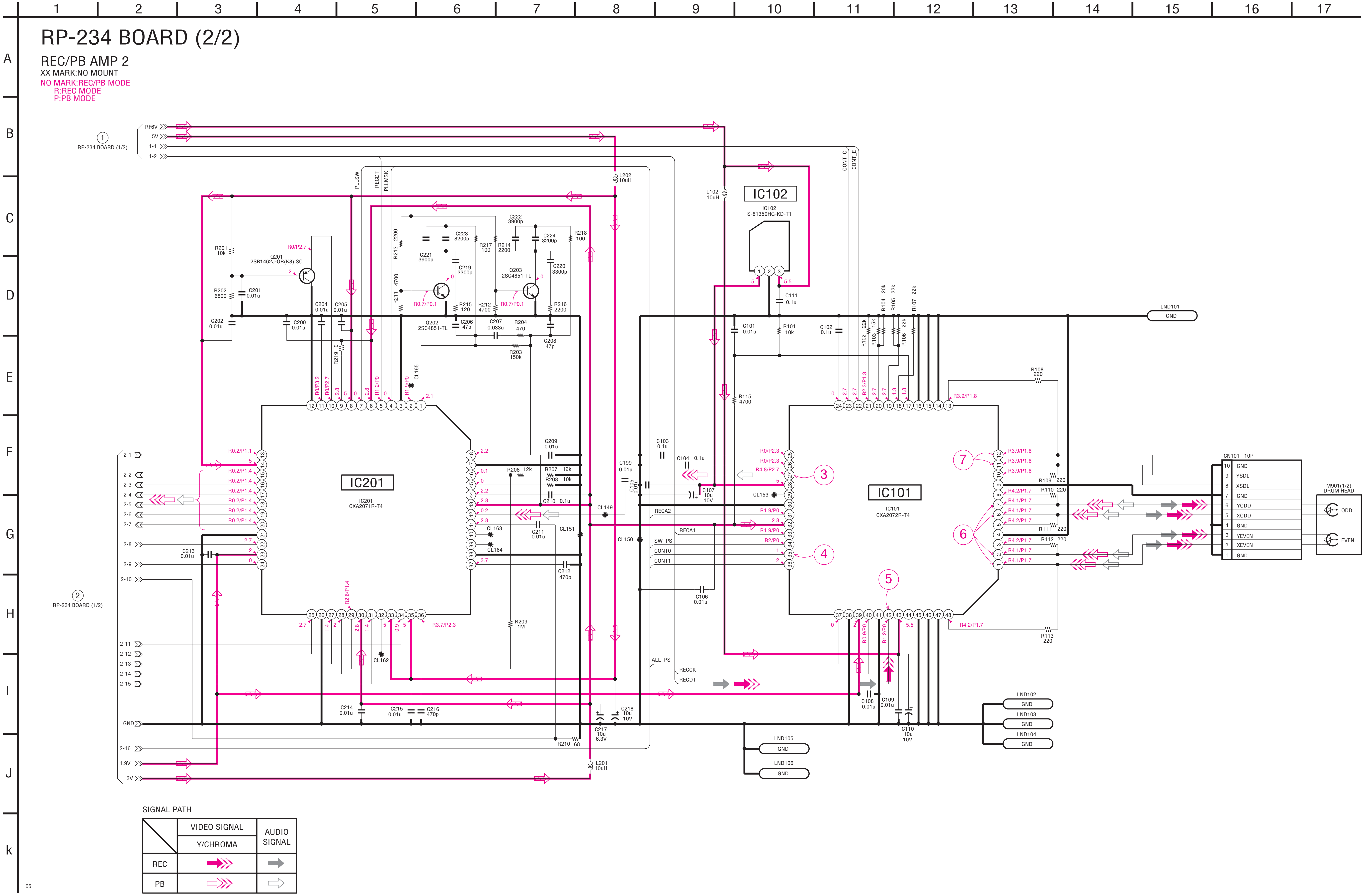

① CONTINUED ON PAGE 4-4
CD-116 HARNESS
② CONTINUED ON PAGE 4-4
VJ-108 HARNESS
③ CONTINUED ON PAGE 4-4
JD-054 HARNESS
④ CONTINUED ON PAGE 4-4
FVJ-021 FLAT CABLE
⑤ CONTINUED ON PAGE 4-4
FVJ-019 FLAT CABLE
⑥ CONTINUED ON PAGE 4-4
⑦ CONTINUED ON PAGE 4-4
JD-053 HARNESS
FVJ-020 FLAT CABLE
CN1100 9P
CN7001 8P
CN100 8P
CN501 2P
M905 FL MOTOR
M904 REEL MOTOR
CN3 18P
M903 CAPSTAN MOTOR
CN400 18P
M902 CAM MOTOR
CN300 2P
M901 (2/2) DRUM MOTOR
CN500 11P
M901(1/2) DRUM HEAD
CN101 10P
EVEN
ODD
CN6001 30P
CN7002 30P
CN5005 50P
FVJ-1 FLAT CABLE
CN001 50P
CN2 21P
CN200 21P
CN1 21P
CN201 21P
FMD-14 FLAT CABLE
MD-76 BOARD
CM-59 BOARD
CN4401 22P
CN203 22P
CN4402 22P
CN202 22P
FRJ-1 FLAT CABLE
CN201 20P
JIG PIN
RP-234 BOARD
JC-21 BOARD
DI-73 BOARD
CN1101 30P
CN9500 120P
B to B
CN6001 120P
CN4400 6P
CN6002 20P
JIG PIN
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
A B C D E F G H I J K L M N O
05

4-2. SCHEMATIC DIAGRAMS

RP-234 (1/2) (REC/PB AMP 1) • See page 4-115 for RP-234 printed wiring board. • See page 4-161 for waveforms.


RP-234 BOARD (1/2)
REC/PB AMP 1
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
CN203 22P
CN202 22P
CN201 20P
JC-21 BOARD (7/14) CN4401 THROUGH THE FRJ-1 FLAT CABLE (SEE PAGE 4-24)
JC-21 BOARD (7/14) CN4402 THROUGH THE FRJ-1 FLAT CABLE (SEE PAGE 4-24)
IC301
IC301 F712504DPM-TEB
JIG PIN
① RP-234 BOARD (2/2)
② RP-234 BOARD (2/2)
RF6V
5V
GND
1.9V
3V
Note:Resistor is mounted to the location where C334 is printed.
SIGNAL PATH
VIDEO SIGNAL
Y/CHROMA
AUDIO SIGNAL
REC
PB

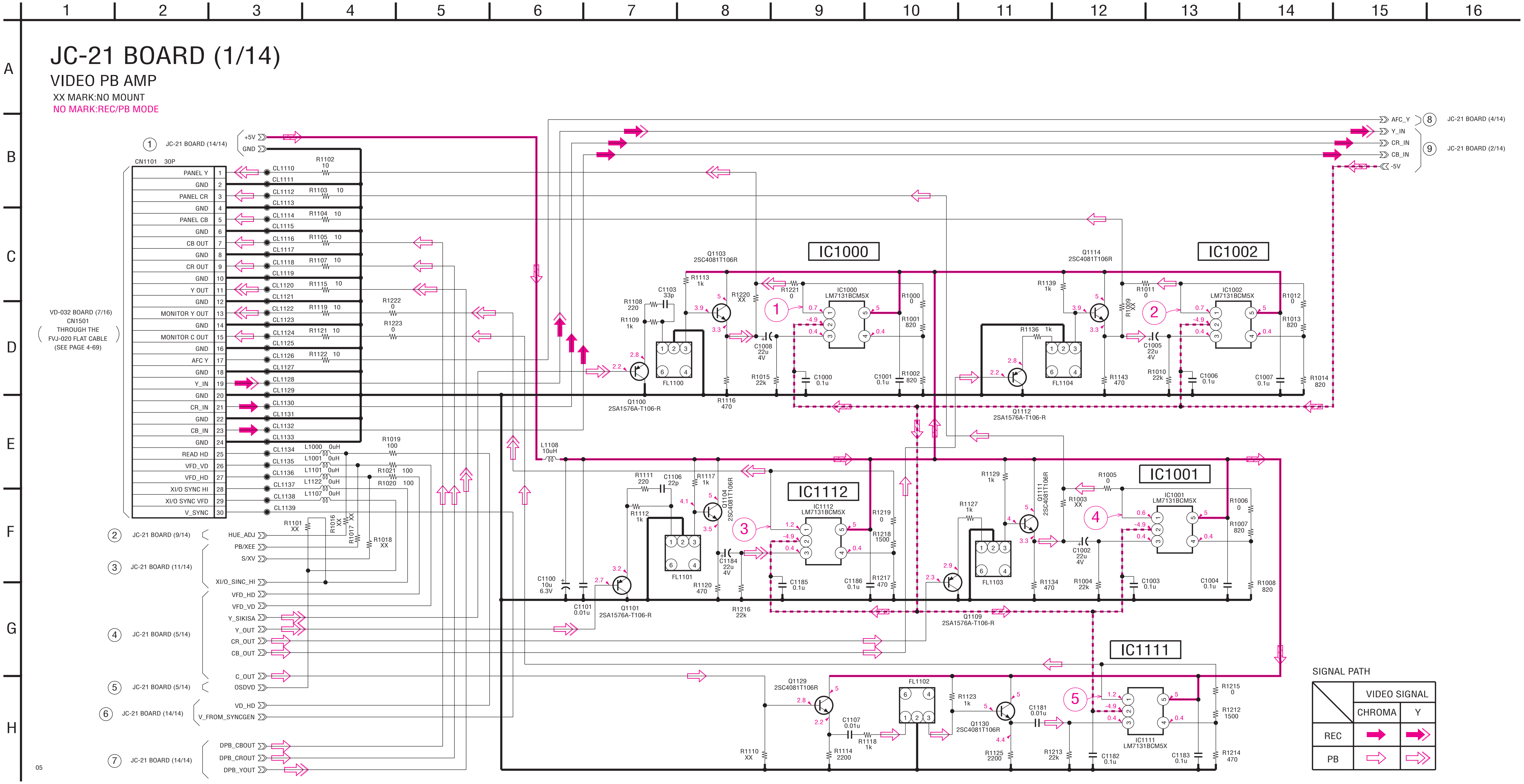
RP-234 (2/2) (REC/PB AMP 2) • See page 4-115 for RP-234 printed wiring board. • See page 4-161 for waveforms.


RP-234 BOARD (2/2)
REC/PB AMP 2
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
① RP-234 BOARD (1/2)
RF6V
5V
1-1
1-2
② RP-234 BOARD (1/2)
2-1
2-2
2-3
2-4
2-5
2-6
2-7
2-8
2-9
2-10
2-11
2-12
2-13
2-14
2-15
GND
2-16
1.9V
3V
IC201
IC201 CXA2071R-T4
IC101
IC101 CXA2072R-T4
IC102
IC102 S-81350HG-KD-T1
Q201 2SB1462J-QR(K8).SO
Q202 2SC4851-TL
Q203 2SC4851-TL
L102 10uH
L201 10uH
L202 10uH
R201 10k
R202 6800
C201 0.01u
C202 0.01u
C200 0.01u
C204 0.01u
C205 0.01u
R213 2200
R211 4700
R219 0
C221 3900p
C223 8200p
C219 3300p
R215 120
R217 100
R214 2200
R212 4700
C222 3900p
C224 8200p
R218 100
C220 3300p
R216 2200
C206 47p
C207 0.033u
R204 470
R203 150k
C208 47p
CL165
C209 0.01u
R206 12k
R207 12k
R208 10k
C210 0.1u
C211 0.01u
CL149
CL151
CL163
CL164
C212 470p
C213 0.01u
R209 1M
CL162
C214 0.01u
C215 0.01u
C216 470p
C217 10u 6.3V
C218 10u 10V
R210 68
C199 0.01u
C105 0.01u
CL150
C103 0.1u
C104 0.1u
C107 10u 10V
CL153
C106 0.01u
C101 0.01u
R101 10k
C111 0.1u
C102 0.1u
R115 4700
R102 22k
R103 15k
R104 20k
R105 22k
R106 22k
R107 22k
R108 220
R109 220
R110 220
R111 220
R112 220
R113 220
C108 0.01u
C109 0.01u
C110 10u 10V
PLLSW
RECDT
PLLMSK
CONT_O
CONT_E
RECA2
RECA1
SW_PS
CONT0
CONT1
ALL_PS
RECCK
RECDT
LND101 GND
LND102 GND
LND103 GND
LND104 GND
LND105 GND
LND106 GND
CN101 10P
10 GND
9 YSDL
8 XSDL
7 GND
6 YODD
5 XODD
4 GND
3 YEVEN
2 XEVEN
1 GND
M901(1/2) DRUM HEAD
ODD
EVEN
③
④
⑤
⑥
⑦
SIGNAL PATH
05

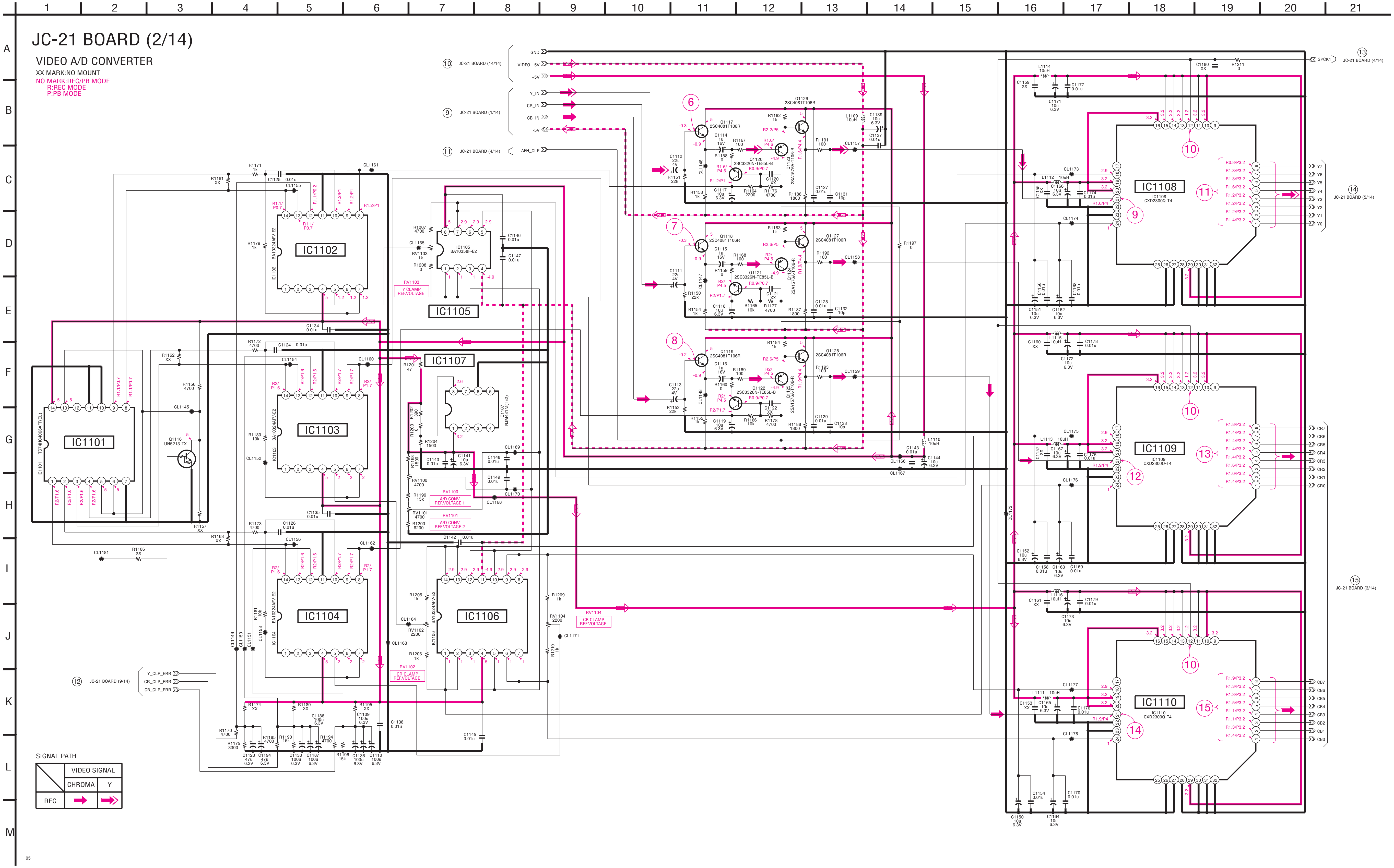
SIGNAL PATH

	VIDEO SIGNAL Y/CHROMA	AUDIO SIGNAL
REC	➡	➡
PB	⇨	⇨

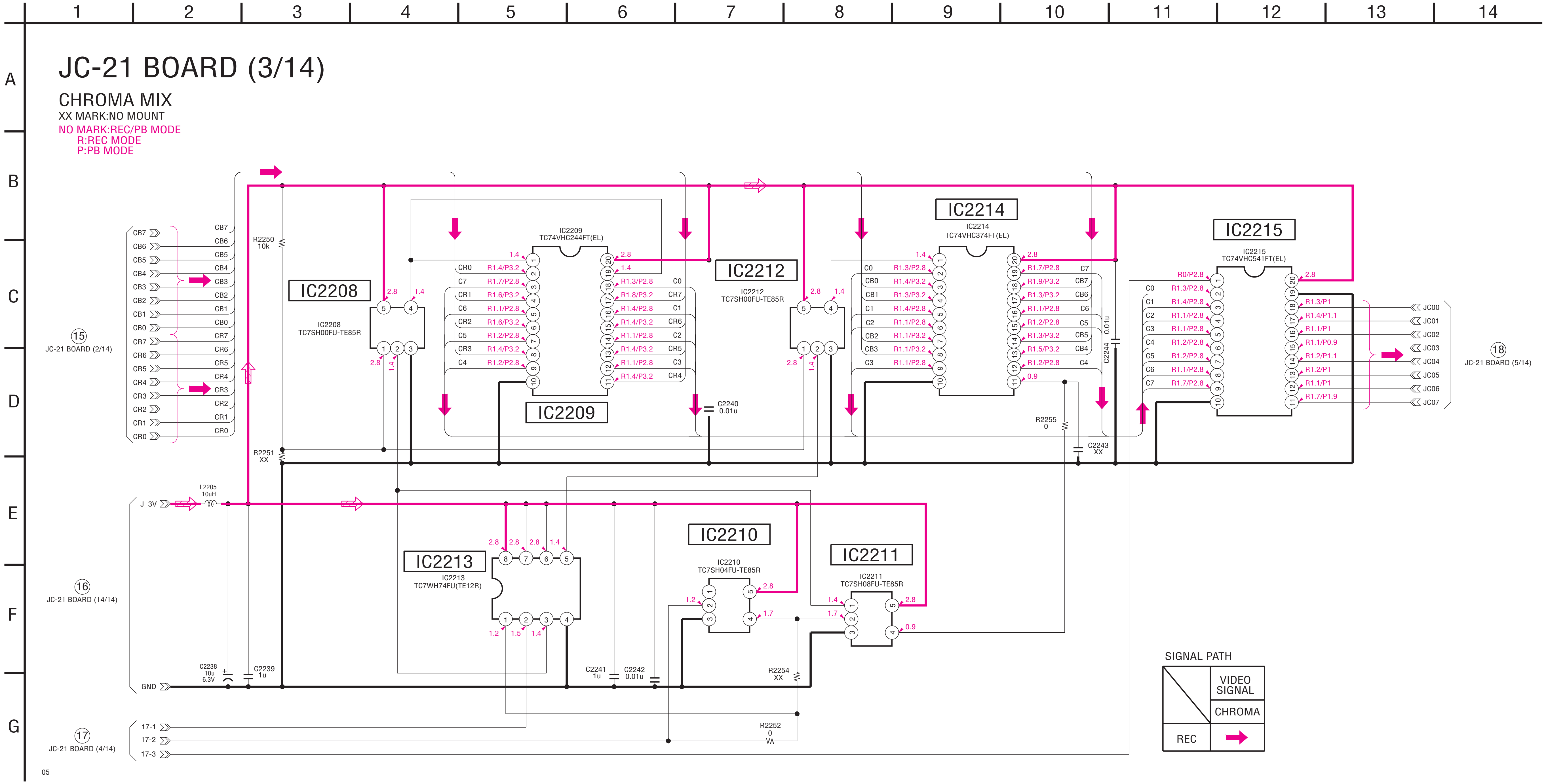
JC-21 (1/14) (VIDEO PB AMP) • **See page 4-119 for JC-21 printed wiring board.** • **See page 4-162 for waveforms.**


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
JC-21 BOARD (1/14)
VIDEO PB AMP
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
① JC-21 BOARD (14/14)
+5V
GND
CN1101 30P
PANEL Y
GND
PANEL CR
GND
PANEL CB
GND
CB OUT
GND
CR OUT
GND
Y OUT
GND
MONITOR Y OUT
GND
MONITOR C OUT
GND
AFC Y
GND
Y_IN
GND
CR_IN
GND
CB_IN
GND
READ HD
VFD_VD
VFD_HD
XI/O SYNC HI
XI/O SYNC VFD
V_SYNC
VD-032 BOARD (7/16)
CN1501
THROUGH THE
FVJ-020 FLAT CABLE
(SEE PAGE 4-69)
② JC-21 BOARD (9/14)
HUE_ADJ
PB/XEE
S/XV
③ JC-21 BOARD (11/14)
XI/O_SINC_HI
VFD_HD
VFD_VD
Y_SIKISA
Y_OUT
CR_OUT
CB_OUT
④ JC-21 BOARD (5/14)
C_OUT
⑤ JC-21 BOARD (5/14)
OSDVD
⑥ JC-21 BOARD (14/14)
VD_HD
V_FROM_SYNCGEN
⑦ JC-21 BOARD (14/14)
DPB_CBOUT
DPB_CROUT
DPB_YOUT
AFC_Y
Y_IN
CR_IN
CB_IN
-5V
⑧ JC-21 BOARD (4/14)
⑨ JC-21 BOARD (2/14)
IC1000
IC1000 LM7131BCM5X
IC1002
IC1002 LM7131BCM5X
IC1001
IC1001 LM7131BCM5X
IC1112
IC1112 LM7131BCM5X
IC1111
IC1111 LM7131BCM5X
Q1100 2SA1576A-T106-R
Q1101 2SA1576A-T106-R
Q1103 2SC4081T106R
Q1104 2SC4081T106R
Q1109 2SA1576A-T106-R
Q1111 2SC4081T106R
Q1112 2SA1576A-T106-R
Q1114 2SC4081T106R
Q1129 2SC4081T106R
Q1130 2SC4081T106R
FL1100
FL1101
FL1102
FL1103
FL1104
L1108 10uH
C1100 10u 6.3V
C1101 0.01u
05
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
REC
PB

JC-21 (2/14) (VIDEO A/D CONVERTER) • See page 4-119 for JC-21 printed wiring board. • See page 4-162, 163 for waveforms.


JC-21 BOARD (2/14)
VIDEO A/D CONVERTER
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
REC
IC1101
TC74HC4066AF(EL)
IC1102
BA10324AFV-E2
IC1103
IC1104
IC1105
BA10358F-E2
IC1106
IC1107
NJM2374M(TE2)
IC1108
CXD2300Q-T4
IC1109
IC1110
Q1116
UN5213-TX
Q1117
2SC4081T106R
Q1120
2SC3326N-TE85L-B
Q1123
2SA1576A-T106-R
Q1126
Q1127
Q1128
RV1100
A/D CONV. REF.VOLTAGE 1
RV1101
A/D CONV. REF.VOLTAGE 2
RV1102
CR CLAMP REF.VOLTAGE
RV1103
Y CLAMP REF.VOLTAGE
RV1104
CB CLAMP REF.VOLTAGE
GND
VIDEO_-5V
+5V
Y_IN
CR_IN
CB_IN
-5V
AFH_CLP
Y_CLP_ERR
CR_CLP_ERR
CB_CLP_ERR
SPCK1
Y7
Y6
Y5
Y4
Y3
Y2
Y1
Y0
CR7
CR6
CR5
CR4
CR3
CR2
CR1
CR0
CB7
CB6
CB5
CB4
CB3
CB2
CB1
CB0
⑩ JC-21 BOARD (14/14)
⑨ JC-21 BOARD (1/14)
⑪ JC-21 BOARD (4/14)
⑫ JC-21 BOARD (9/14)
⑬ JC-21 BOARD (4/14)
⑭ JC-21 BOARD (5/14)
⑮ JC-21 BOARD (3/14)
05

JC-21 (3/14) (CHROMA MIX) • See page 4-119 for JC-21 printed wiring board.


1
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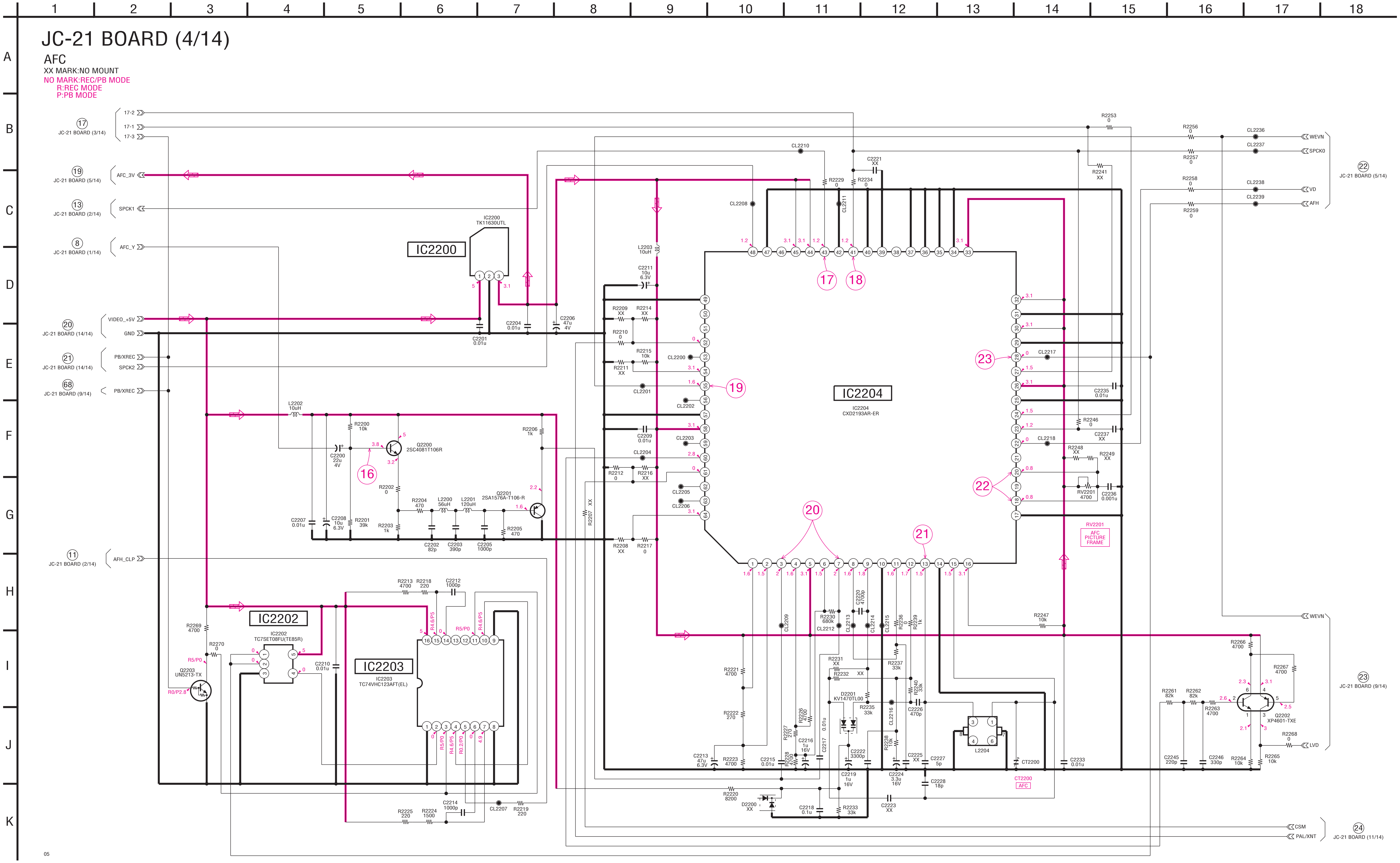
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
JC-21 BOARD (3/14)
CHROMA MIX
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
IC2208
IC2208
TC7SH00FU-TE85R
IC2209
IC2209
TC74VHC244FT(EL)
IC2212
IC2212
TC7SH00FU-TE85R
IC2214
IC2214
TC74VHC374FT(EL)
IC2215
IC2215
TC74VHC541FT(EL)
IC2213
IC2213
TC7WH74FU(TE12R)
IC2210
IC2210
TC7SH04FU-TE85R
IC2211
IC2211
TC7SH08FU-TE85R
⑮
JC-21 BOARD (2/14)
⑯
JC-21 BOARD (14/14)
⑰
JC-21 BOARD (4/14)
⑱
JC-21 BOARD (5/14)
CB7
CB6
CB5
CB4
CB3
CB2
CB1
CB0
CR7
CR6
CR5
CR4
CR3
CR2
CR1
CR0
J_3V
GND
17-1
17-2
17-3
JC00
JC01
JC02
JC03
JC04
JC05
JC06
JC07
R2250
10k
R2251
XX
L2205
10uH
C2238
10u
6.3V
C2239
1u
C2240
0.01u
C2241
1u
C2242
0.01u
C2243
XX
C2244
0.01u
R2252
0
R2254
XX
R2255
0
R1.4/P3.2
R1.7/P2.8
R1.6/P3.2
R1.1/P2.8
R1.2/P2.8
R1.3/P2.8
R1.8/P3.2
R1.4/P2.8
R1.9/P3.2
R1.5/P3.2
R0/P2.8
R1.3/P1
R1.4/P1.1
R1.1/P1
R1.1/P0.9
R1.2/P1.1
R1.2/P1
R1.7/P1.9
2.8
1.4
1.2
1.5
1.7
0.9
05

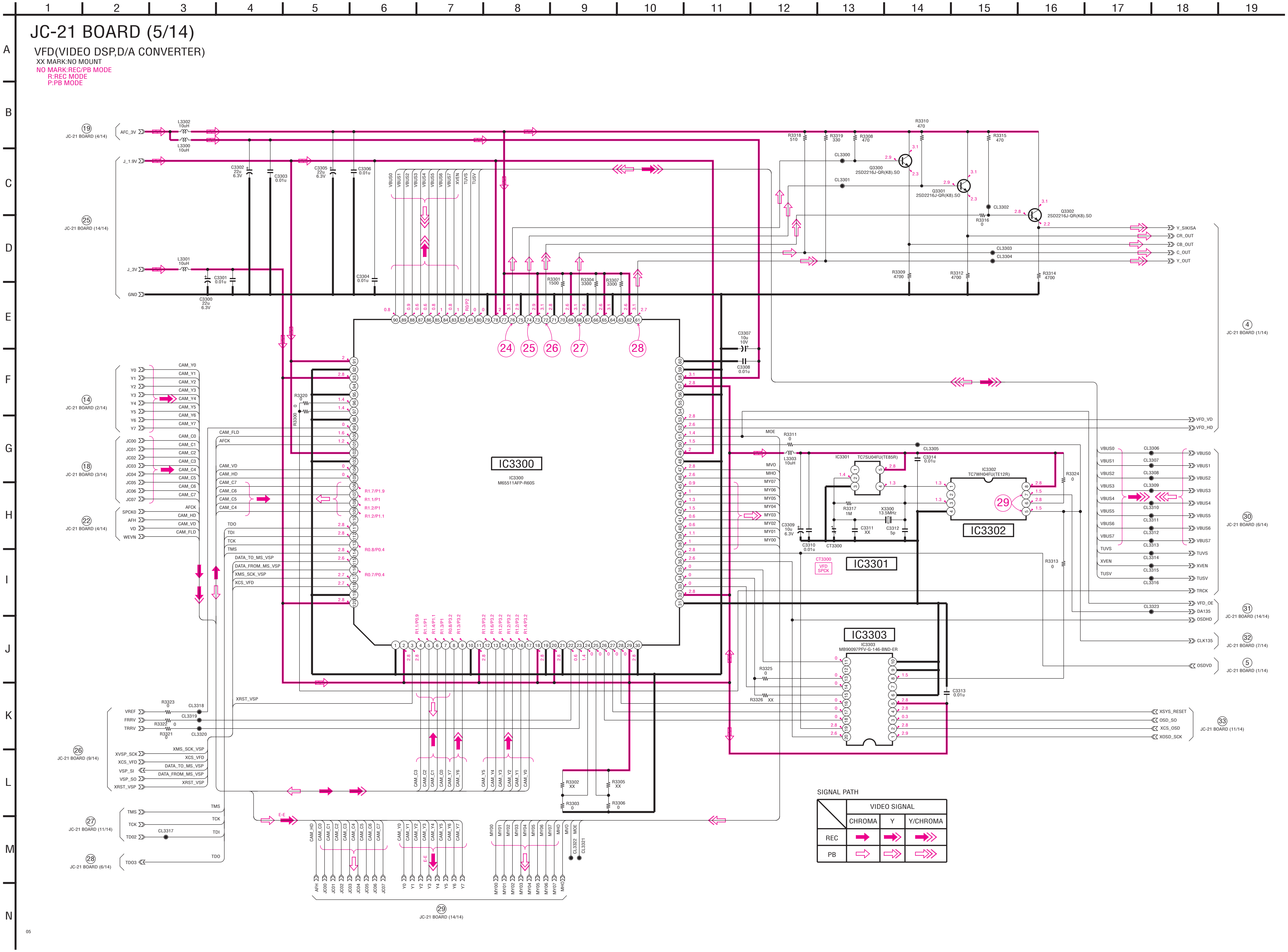
SIGNAL PATH

	VIDEO SIGNAL
	CHROMA
REC	➡

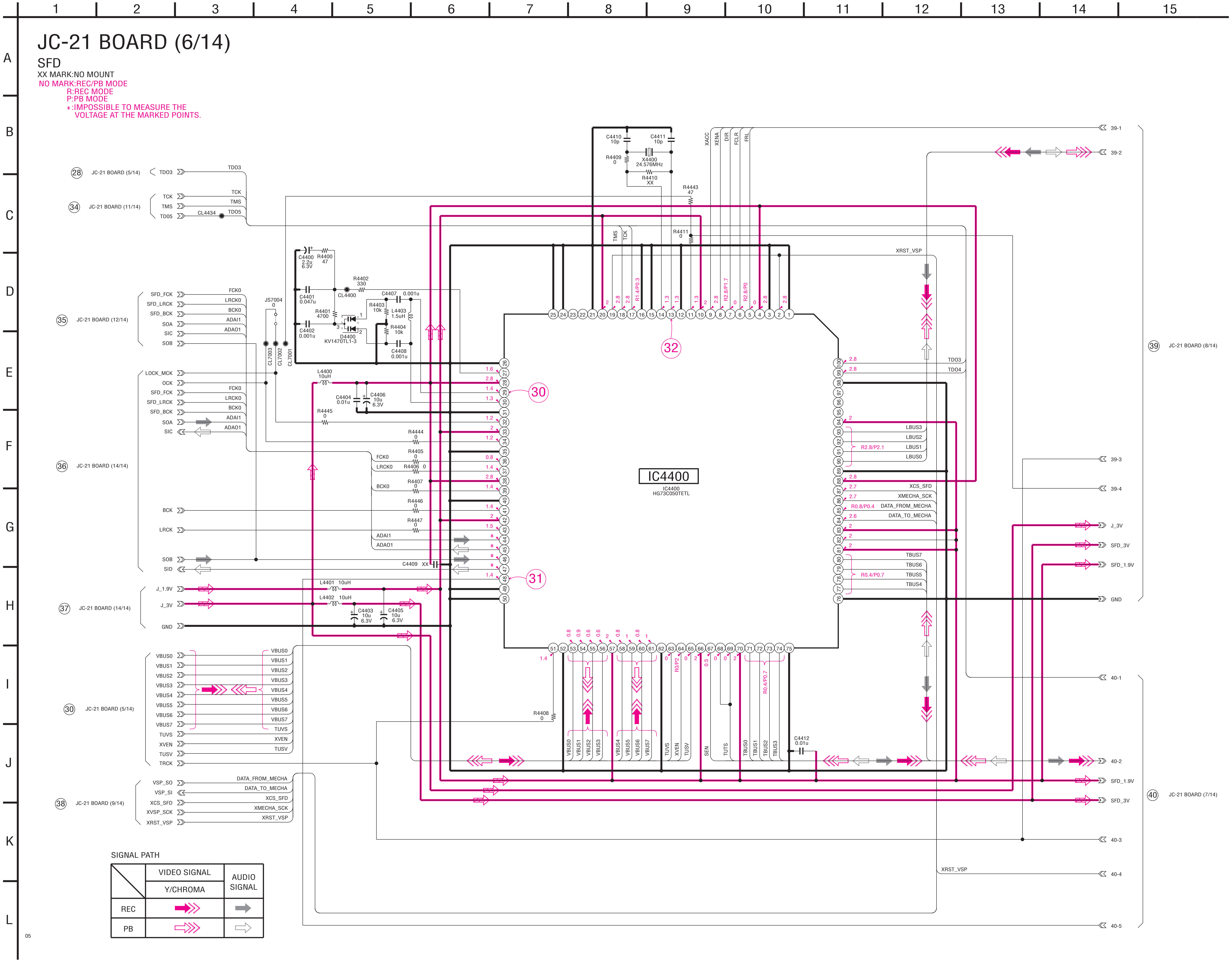
JC-21 (4/14) (AFC) • See page 4-119 for JC-21 printed wiring board. • See page 4-163, 164 for waveforms.


JC-21 BOARD (4/14)
AFC
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
IC2200
IC2200 TK11630UTL
IC2202
IC2202 TC7SET08FU(TE85R)
IC2203
IC2203 TC74VHC123AFT(EL)
IC2204
IC2204 CXD2193AR-ER
Q2200 2SC4081T106R
Q2201 2SA1576A-T106-R
Q2202 XP4601-TXE
Q2203 UN5213-TX
D2200 XX
D2201 KV1470TL00
L2200 56uH
L2201 120uH
L2202 10uH
L2203 10uH
L2204
RV2201 4700
RV2201 AFC PICTURE FRAME
CT2200 AFC
JC-21 BOARD (3/14)
JC-21 BOARD (5/14)
JC-21 BOARD (2/14)
JC-21 BOARD (1/14)
JC-21 BOARD (14/14)
JC-21 BOARD (9/14)
JC-21 BOARD (11/14)
17-2
17-1
17-3
AFC_3V
SPCK1
AFC_Y
VIDEO_+5V
GND
PB/XREC
SPCK2
AFH_CLP
WEVN
SPCK0
VD
AFH
LVD
CSM
PAL/XNT
05

JC-21 (5/14) (VFD (VIDEO DSP, D/A CONVERTER)) • See page 4-119 for JC-21 printed wiring board. • See page 4-164, 165 for waveforms.


JC-21 BOARD (5/14)
VFD(VIDEO DSP,D/A CONVERTER)
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
IC3300
IC3300 M65511AFP-R60S
IC3301
IC3301 TC7SU04FU(TE85R)
IC3302
IC3302 TC7WH04FU(TE12R)
IC3303
IC3303 MB90097PFV-G-146-BND-ER
Q3300 2SD2216J-QR(K8).SO
Q3301 2SD2216J-QR(K8).SO
Q3302 2SD2216J-QR(K8).SO
X3300 13.5MHz
JC-21 BOARD (4/14)
JC-21 BOARD (14/14)
JC-21 BOARD (2/14)
JC-21 BOARD (3/14)
JC-21 BOARD (9/14)
JC-21 BOARD (11/14)
JC-21 BOARD (6/14)
JC-21 BOARD (1/14)
JC-21 BOARD (7/14)
Y_SIKISA
CR_OUT
CB_OUT
C_OUT
Y_OUT
VFD_VD
VFD_HD
VFD_OE
DA135
OSDHD
CLK135
OSDVD
XSYS_RESET
OSD_SO
XCS_OSD
XOSD_SCK
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
REC
PB
05

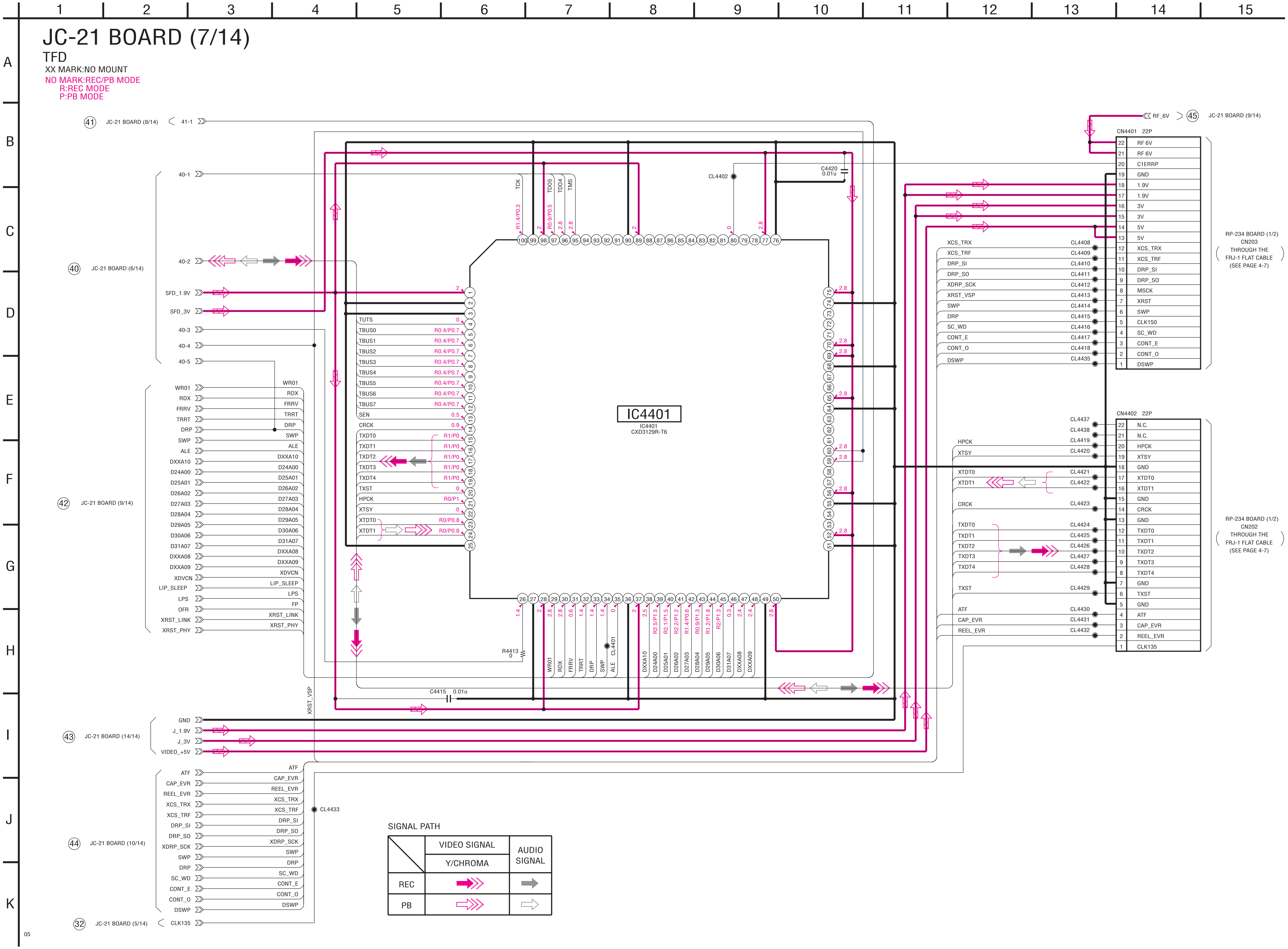
JC-21 (6/14) (SFD) • See page 4-119 for JC-21 printed wiring board. • See page 4-165 for waveforms.


JC-21 BOARD (6/14)
SFD
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
*:IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I J K L
IC4400
IC4400 HG73C050TETL
(28) JC-21 BOARD (5/14)
(34) JC-21 BOARD (11/14)
(35) JC-21 BOARD (12/14)
(36) JC-21 BOARD (14/14)
(37) JC-21 BOARD (14/14)
(30) JC-21 BOARD (5/14)
(38) JC-21 BOARD (9/14)
(39) JC-21 BOARD (8/14)
(40) JC-21 BOARD (7/14)
30
31
32
TDO3
TCK
TMS
TDO5
CL4434
SFD_FCK
SFD_LRCK
SFD_BCK
SOA
SIC
SOB
FCK0
LRCK0
BCK0
ADAI1
ADAO1
LOCK_MCK
OCK
BCK
LRCK
SID
J_1.9V
J_3V
GND
VBUS0
VBUS1
VBUS2
VBUS3
VBUS4
VBUS5
VBUS6
VBUS7
TUVS
XVEN
TUSV
TRCK
VSP_SO
VSP_SI
XCS_SFD
XVSP_SCK
XRST_VSP
DATA_FROM_MECHA
DATA_TO_MECHA
XMECHA_SCK
C4400 2.2u 6.3V
R4400 47
R4402 330
C4401 0.047u
CL4400
C4407 0.001u
R4403 10k
L4403 1.5uH
R4401 4700
C4402 0.001u
D4400 KV1470TL1-3
R4404 10k
C4408 0.001u
JS7004 0
CL7003
CL7002
CL7001
L4400 10uH
C4404 0.01u
C4406 10u 6.3V
R4445 0
R4444 0
R4405 0
R4406 0
R4407 0
R4446 0
R4447 0
C4409 XX
L4401 10uH
L4402 10uH
C4403 10u 6.3V
C4405 10u 6.3V
R4408 0
C4412 0.01u
C4410 10p
C4411 10p
R4409 0
X4400 24.576MHz
R4410 XX
R4443 47
R4411 0
XACC
XENA
DIR
FCLR
FRL
TMS
TCK
TDO3
TDO4
LBUS3
LBUS2
LBUS1
LBUS0
TBUS7
TBUS6
TBUS5
TBUS4
TBUS0
TBUS1
TBUS2
TBUS3
TUTS
SEN
R2.8/P2.1
R0.8/P0.4
R0.4/P0.7
R1.4/P0.3
R2.8/P1.7
R2.8/P0
R0/P2
39-1
39-2
39-3
39-4
J_3V
SFD_3V
SFD_1.9V
GND
40-1
40-2
40-3
40-4
40-5
05

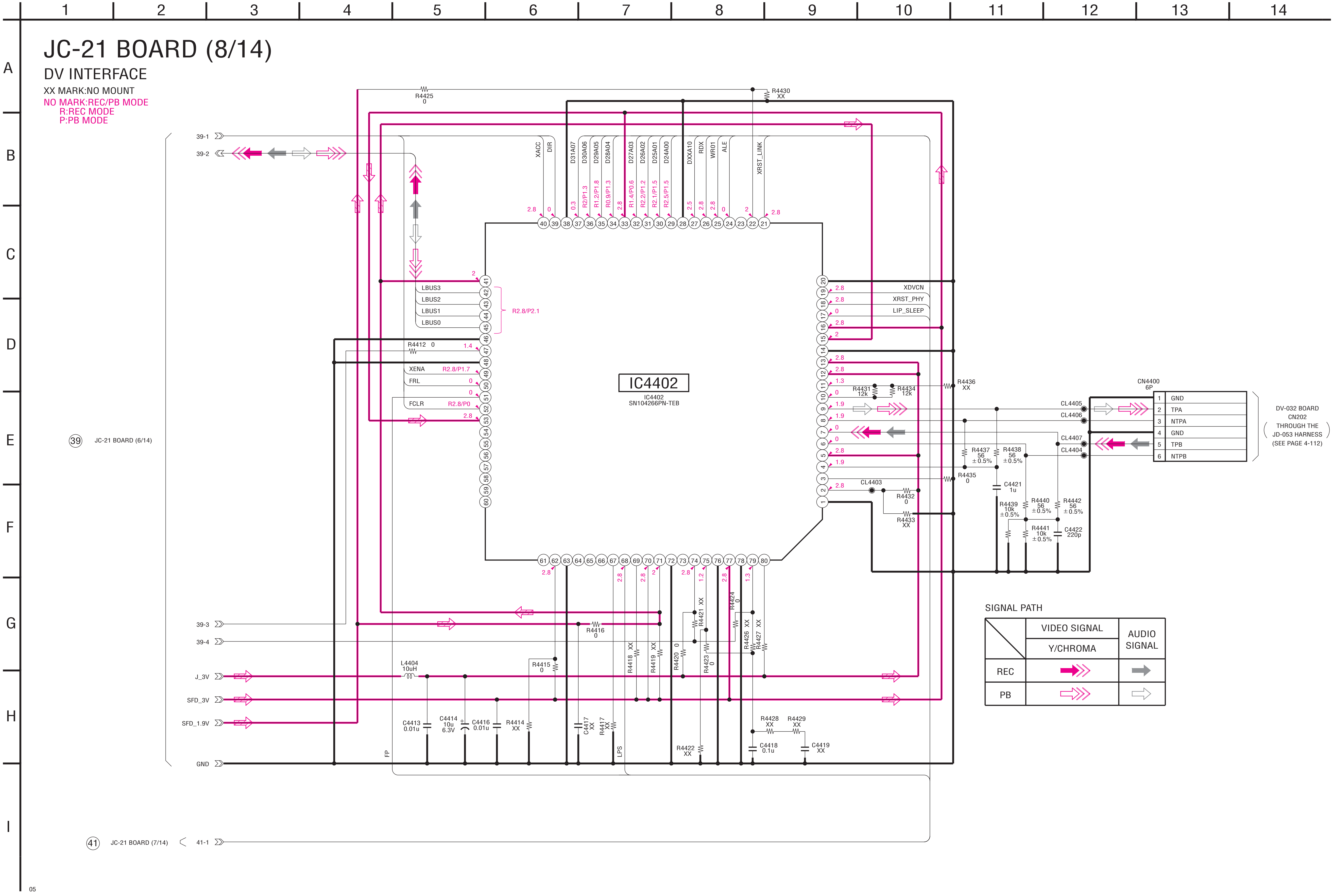
SIGNAL PATH

	VIDEO SIGNAL	AUDIO SIGNAL
	Y/CHROMA	
REC	⇛	➡
PB	⇛	⇨

JC-21 (7/14) (TFD) **• See page 4-119 for JC-21 printed wiring board.**


JC-21 BOARD (7/14)
TFD
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
IC4401
CXD3129R-T6
CN4401 22P
CN4402 22P
JC-21 BOARD (8/14)
JC-21 BOARD (6/14)
JC-21 BOARD (9/14)
JC-21 BOARD (14/14)
JC-21 BOARD (10/14)
JC-21 BOARD (5/14)
RP-234 BOARD (1/2) CN203 THROUGH THE FRJ-1 FLAT CABLE (SEE PAGE 4-7)
RP-234 BOARD (1/2) CN202 THROUGH THE FRJ-1 FLAT CABLE (SEE PAGE 4-7)
SFD_1.9V
SFD_3V
GND
J_1.9V
J_3V
VIDEO_+5V
RF_6V
C4420 0.01u
C4415 0.01u
R4413 0
CL4402
CL4433
SIGNAL PATH
VIDEO SIGNAL
Y/CHROMA
AUDIO SIGNAL
REC
PB
05

JC-21 (8/14) (DV INTERFACE) • See page 4-119 for JC-21 printed wiring board.


1
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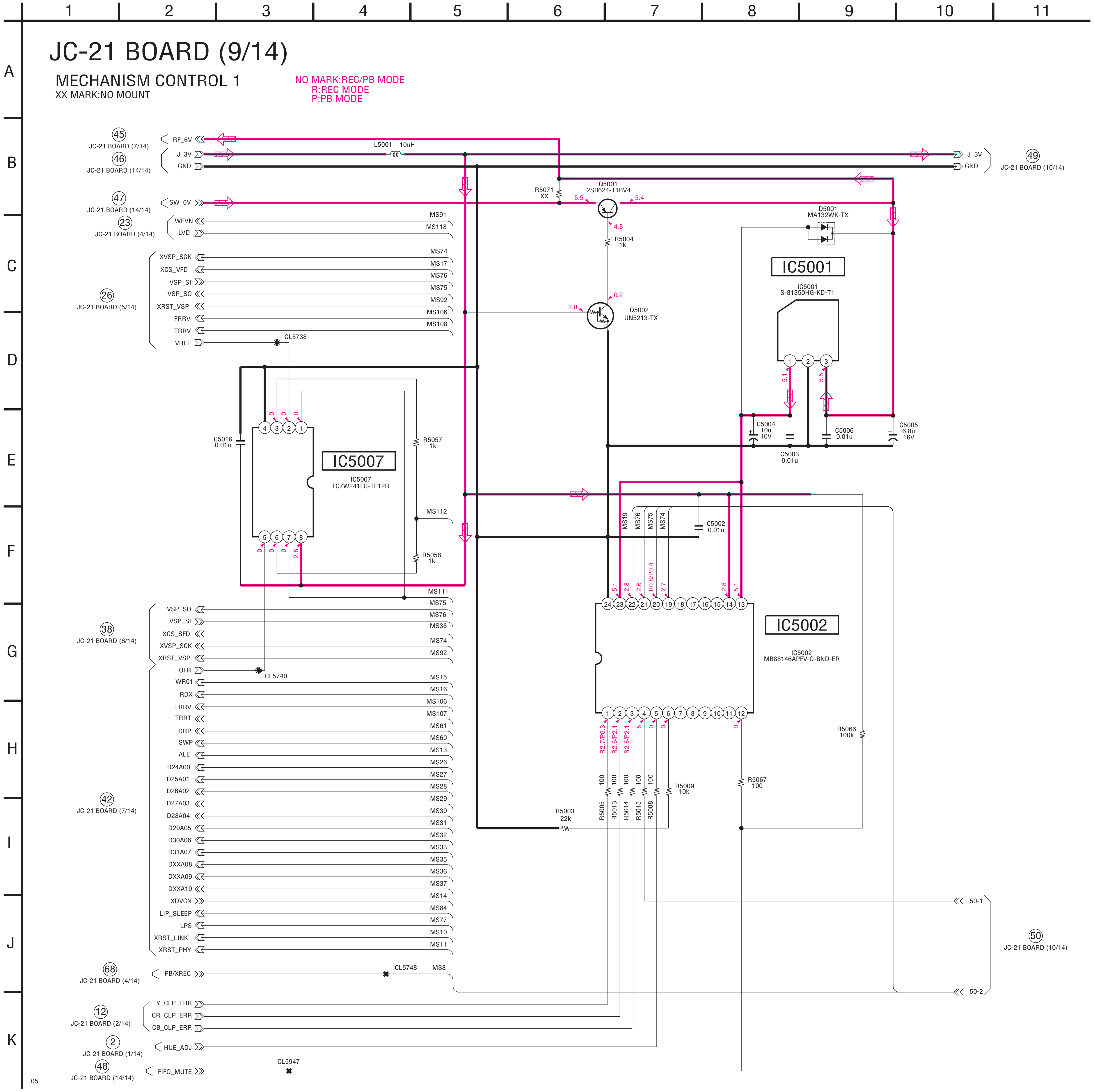
11
12
13
14
A
B
C
D
E
F
G
H
I
JC-21 BOARD (8/14)
DV INTERFACE
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
39-1
39-2
39-3
39-4
J_3V
SFD_3V
SFD_1.9V
GND
41-1
39 JC-21 BOARD (6/14)
41 JC-21 BOARD (7/14)
R4425 0
R4430 XX
XACC
DIR
D31A07
D30A06
D29A05
D28A04
D27A03
D26A02
D25A01
D24A00
DXXA10
RDX
WR01
ALE
XRST_LINK
LBUS3
LBUS2
LBUS1
LBUS0
R2.8/P2.1
R4412 0
XENA
R2.8/P1.7
FRL
FCLR
R2.8/P0
IC4402
IC4402
SN104266PN-TEB
XDVCN
XRST_PHY
LIP_SLEEP
R4431 12k
R4434 12k
R4436 XX
R4435 0
CL4403
R4432 0
R4433 XX
R4437 56 ±0.5%
R4438 56 ±0.5%
C4421 1u
R4439 10k ±0.5%
R4440 56 ±0.5%
R4441 10k ±0.5%
R4442 56 ±0.5%
C4422 220p
CL4405
CL4406
CL4407
CL4404
CN4400 6P
1 GND
2 TPA
3 NTPA
4 GND
5 TPB
6 NTPB
DV-032 BOARD CN202 THROUGH THE JD-053 HARNESS (SEE PAGE 4-112)
L4404 10uH
C4413 0.01u
C4414 10u 6.3V
C4416 0.01u
R4414 XX
R4415 0
R4416 0
C4417 XX
R4417 XX
R4418 XX
R4419 XX
R4420 0
R4421 XX
R4422 XX
R4423 0
R4424 0
R4426 XX
R4427 XX
R4428 XX
R4429 XX
C4418 0.1u
C4419 XX
FP
LPS
SIGNAL PATH
VIDEO SIGNAL
Y/CHROMA
AUDIO SIGNAL
REC
PB
05

JC-21 (9/14) (MECHANISM CONTROL 1) • See page 4-119 for JC-21 printed wiring board.


1
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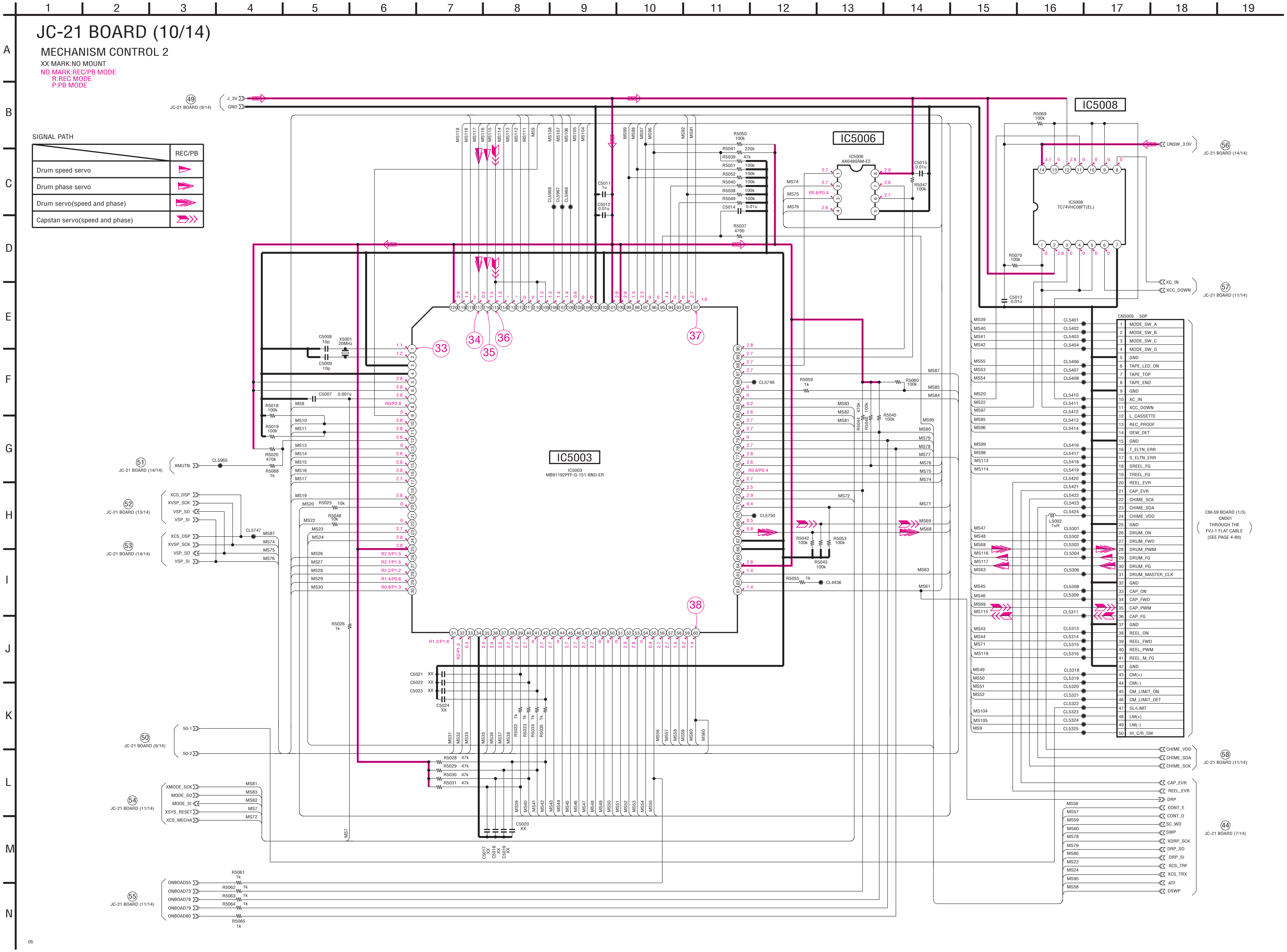
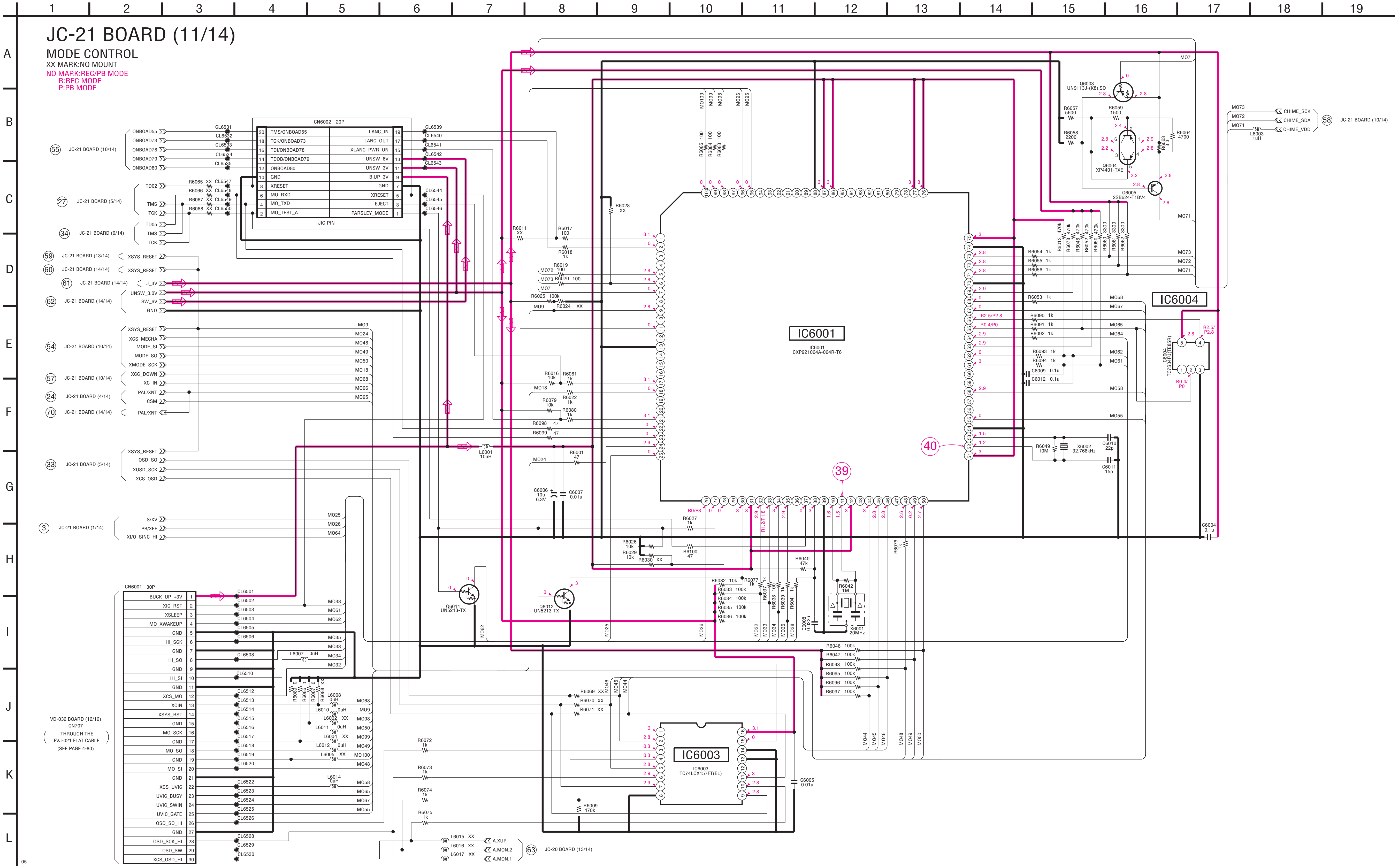
9
10
11
A
B
C
D
E
F
G
H
I
J
K
JC-21 BOARD (9/14)
MECHANISM CONTROL 1
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
45
JC-21 BOARD (7/14)
RF_6V
46
JC-21 BOARD (14/14)
J_3V
GND
47
JC-21 BOARD (14/14)
SW_6V
23
JC-21 BOARD (4/14)
WEVN
LVD
26
JC-21 BOARD (5/14)
XVSP_SCK
XCS_VFD
VSP_SI
VSP_SO
XRST_VSP
FRRV
TRRV
VREF
MS91
MS118
MS74
MS17
MS76
MS75
MS92
MS106
MS108
CL5738
L5001 10uH
R5071
XX
Q5001
2SB624-T1BV4
5.5
5.4
4.8
R5004
1k
0.2
2.8
Q5002
UN5213-TX
D5001
MA132WK-TX
J_3V
GND
49
JC-21 BOARD (10/14)
IC5001
IC5001
S-81350HG-KD-T1
1
2
3
5.1
5.5
C5004
10u
10V
C5003
0.01u
C5006
0.01u
C5005
6.8u
16V
C5016
0.01u
IC5007
IC5007
TC7W241FU-TE12R
4
3
2
1
0
0
0
5
6
7
8
0
0
0
2.8
R5057
1k
MS112
R5058
1k
MS111
MS19
MS76
MS75
MS74
C5002
0.01u
5.1
2.8
2.6
R0.8/P0.4
2.7
2.8
5.1
24
23
22
21
20
19
18
17
16
15
14
13
IC5002
IC5002
MB88146APFV-G-BND-ER
1
2
3
4
5
6
7
8
9
10
11
12
R2.7/P0.3
R2.6/P2.1
R2.6/P2.1
5
0
0
0
R5066
100k
100
100
100
100
100
R5005
R5013
R5014
R5015
R5008
R5009
10k
R5067
100
R5003
22k
38
JC-21 BOARD (6/14)
VSP_SO
VSP_SI
XCS_SFD
XVSP_SCK
XRST_VSP
OFR
CL5740
MS75
MS76
MS38
MS74
MS92
42
JC-21 BOARD (7/14)
WR01
RDX
FRRV
TRRT
DRP
SWP
ALE
D24A00
D25A01
D26A02
D27A03
D28A04
D29A05
D30A06
D31A07
DXXA08
DXXA09
DXXA10
XDVCN
LIP_SLEEP
LPS
XRST_LINK
XRST_PHY
MS15
MS16
MS106
MS107
MS61
MS60
MS13
MS26
MS27
MS28
MS29
MS30
MS31
MS32
MS33
MS35
MS36
MS37
MS14
MS84
MS77
MS10
MS11
68
JC-21 BOARD (4/14)
PB/XREC
CL5748
MS8
50-1
50-2
50
JC-21 BOARD (10/14)
12
JC-21 BOARD (2/14)
Y_CLP_ERR
CR_CLP_ERR
CB_CLP_ERR
2
JC-21 BOARD (1/14)
HUE_ADJ
48
JC-21 BOARD (14/14)
FIFO_MUTE
CL5947
05

JC-21 (10/14) (MECHANISM CONTROL 2) • See page 4-119 for JC-21 printed wiring board. • See page 4-165 for waveforms.

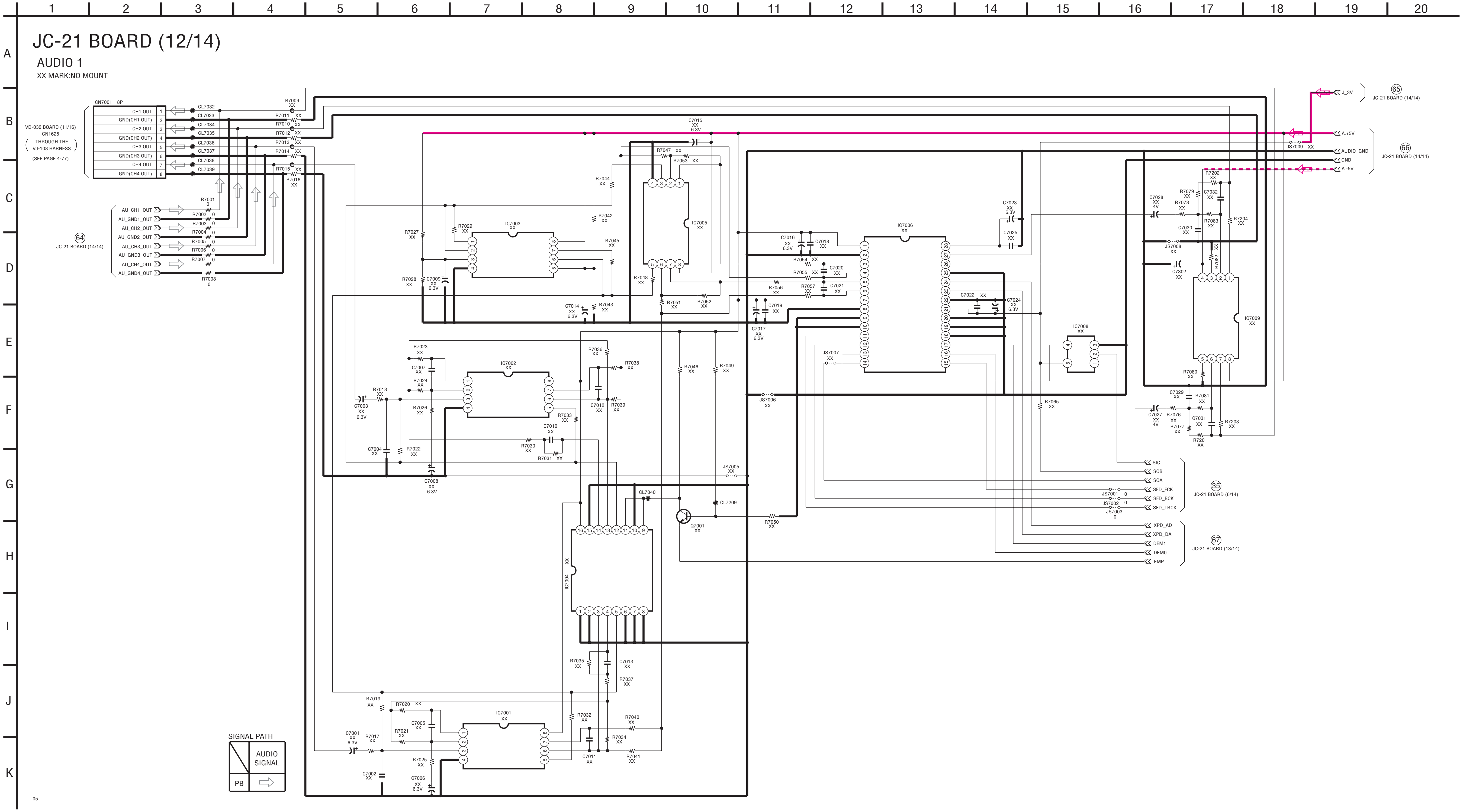

JC-21 BOARD (10/14)
MECHANISM CONTROL 2
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
SIGNAL PATH
IC5003
IC5003
MB91192PFF-G-151-BND-ER
IC5006
IC5006
AK6480AM-E2
IC5008
IC5008
TC74VHC08FT(EL)
X5001
20MHz
CN5005 50P
JC-21 BOARD (9/14)
JC-21 BOARD (14/14)
JC-21 BOARD (13/14)
JC-21 BOARD (11/14)
JC-21 BOARD (7/14)
CM-59 BOARD (1/3)
CN001
THROUGH THE
FVJ-1 FLAT CABLE
(SEE PAGE 4-89)
J_3V
GND
UNSW_3.0V
XC_IN
XCC_DOWN
XMUTN
XCS_DSP
XVSP_SCK
VSP_SO
VSP_SI
XMODE_SCK
MODE_SO
MODE_SI
XSYS_RESET
XCS_MECHA
ONBOAD55
ONBOAD73
ONBOAD78
ONBOAD79
ONBOAD80
CHIME_VDD
CHIME_SDA
CHIME_SCK
CAP_EVR
REEL_EVR
DRP
CONT_E
CONT_O
SC_WD
SWP
XDRP_SCK
DRP_SO
DRP_SI
XCS_TRF
XCS_TRX
ATF
DSWP
1 MODE_SW_A
2 MODE_SW_B
3 MODE_SW_C
4 MODE_SW_D
5 GND
6 TAPE_LED_ON
7 TAPE_TOP
8 TAPE_END
9 GND
10 XC_IN
11 XCC_DOWN
12 L_CASSETTE
13 REC_PROOF
14 DEW_DET
15 GND
16 T_ELTN_ERR
17 S_ELTN_ERR
18 SREEL_FG
19 TREEL_FG
20 REEL_EVR
21 CAP_EVR
22 CHIME_SCK
23 CHIME_SDA
24 CHIME_VDD
25 GND
26 DRUM_ON
27 DRUM_FWD
28 DRUM_PWM
29 DRUM_FG
30 DRUM_PG
31 DRUM_MASTER_CLK
32 GND
33 CAP_ON
34 CAP_FWD
35 CAP_PWM
36 CAP_FG
37 GND
38 REEL_ON
39 REEL_FWD
40 REEL_PWM
41 REEL_M_FG
42 GND
43 CM(+)
44 CM(-)
45 CM_LIMIT_ON
46 CM_LIMIT_DET
47 SL/LIMT
48 LM(+)
49 LM(-)
50 HI_C/R_SW
(33)
(34)
(35)
(36)
(37)
(38)
(44)
(49)
(50)
(51)
(52)
(53)
(54)
(55)
(56)
(57)
(58)
A B C D E F G H I J K L M N
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
05

	REC/PB
Drum speed servo	▶
Drum phase servo	▶
Drum servo(speed and phase)	▶▶
Capstan servo(speed and phase)	≫

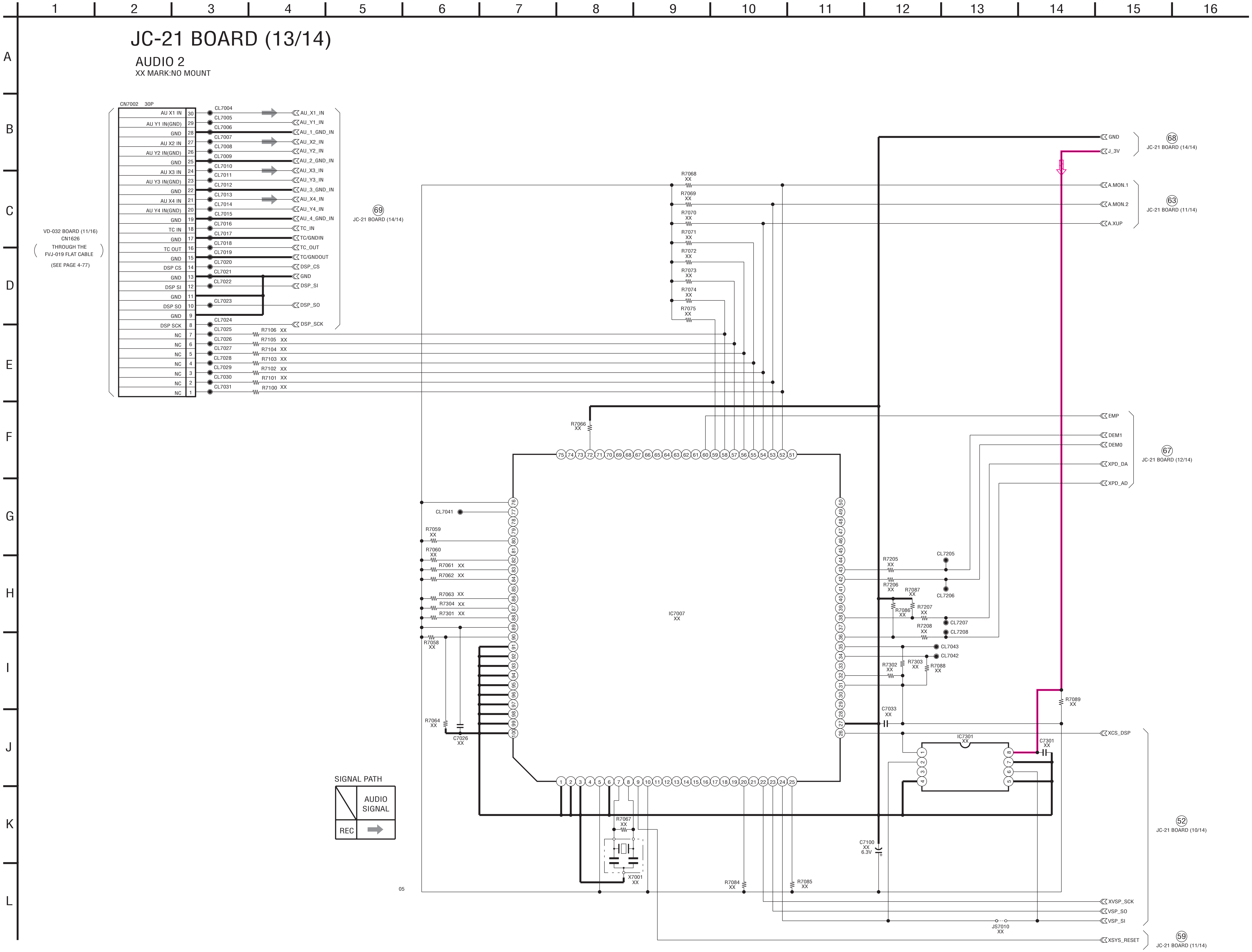
JC-21 (11/14) (MODE CONTROL) • See page 4-119 for JC-21 printed wiring board. • See page 4-166 for waveforms.


JC-21 BOARD (11/14)
MODE CONTROL
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
CN6002 20P
JIG PIN
CN6001 30P
IC6001
IC6001 CXP921064A-064R-T6
IC6003
IC6003 TC74LCX157FT(EL)
IC6004
IC6004 TC7S04FU(TE85R)
Q6003 UN9113J-(K8).SO
Q6004 XP4401-TXE
Q6005 2SB624-T1BV4
Q6011 UN5213-TX
Q6012 UN5213-TX
X6001 20MHz
X6002 32.768kHz
JC-21 BOARD (10/14)
JC-21 BOARD (5/14)
JC-21 BOARD (6/14)
JC-21 BOARD (13/14)
JC-21 BOARD (14/14)
JC-21 BOARD (4/14)
JC-21 BOARD (1/14)
JC-20 BOARD (13/14)
VD-032 BOARD (12/16) CN707 THROUGH THE FVJ-021 FLAT CABLE (SEE PAGE 4-80)
39
40
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
A B C D E F G H I J K L
05

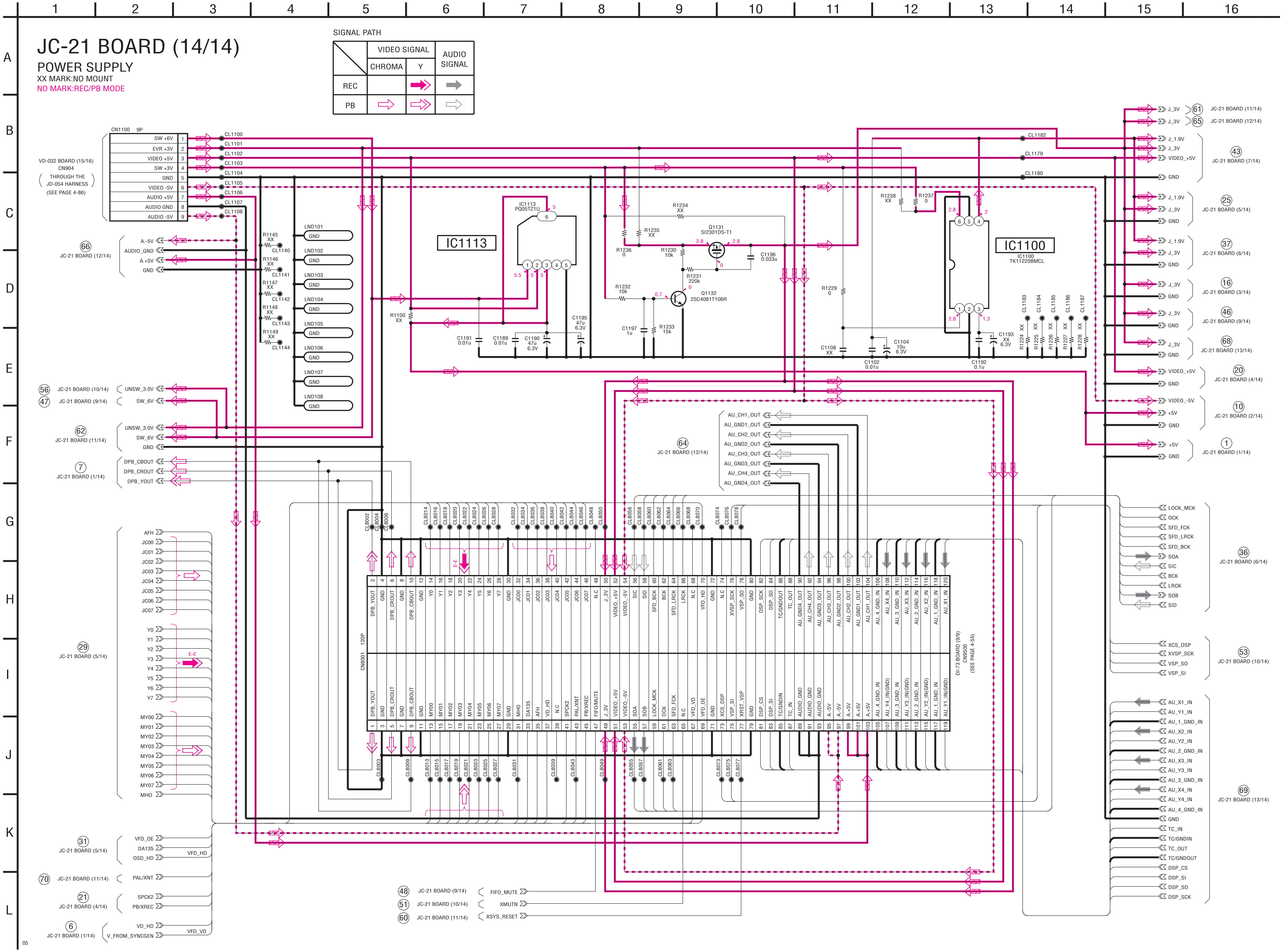
JC-21 (12/14) (AUDIO 1) • See page 4-119 for JC-21 printed wiring board.


JC-21 BOARD (12/14)
AUDIO 1
XX MARK:NO MOUNT
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
A B C D E F G H I J K
CN7001 8P
CH1 OUT
GND(CH1 OUT)
CH2 OUT
GND(CH2 OUT)
CH3 OUT
GND(CH3 OUT)
CH4 OUT
GND(CH4 OUT)
VD-032 BOARD (11/16) CN1625
THROUGH THE VJ-108 HARNESS
(SEE PAGE 4-77)
CL7032 CL7033 CL7034 CL7035 CL7036 CL7037 CL7038 CL7039
AU_CH1_OUT
AU_GND1_OUT
AU_CH2_OUT
AU_GND2_OUT
AU_CH3_OUT
AU_GND3_OUT
AU_CH4_OUT
AU_GND4_OUT
64 JC-21 BOARD (14/14)
IC7001 IC7002 IC7003 IC7004 IC7005 IC7006 IC7008 IC7009
Q7001
CL7040 CL7209
JS7001 JS7002 JS7003 JS7005 JS7006 JS7007 JS7008 JS7009
J_3V
65 JC-21 BOARD (14/14)
A.+5V
AUDIO_GND
GND
A.-5V
66 JC-21 BOARD (14/14)
SIC
SDB
SDA
SFD_FCK
SFD_BCK
SFD_LRCK
35 JC-21 BOARD (6/14)
XPD_AD
XPD_DA
DEM1
DEM0
EMP
67 JC-21 BOARD (13/14)
SIGNAL PATH
AUDIO SIGNAL
PB
05

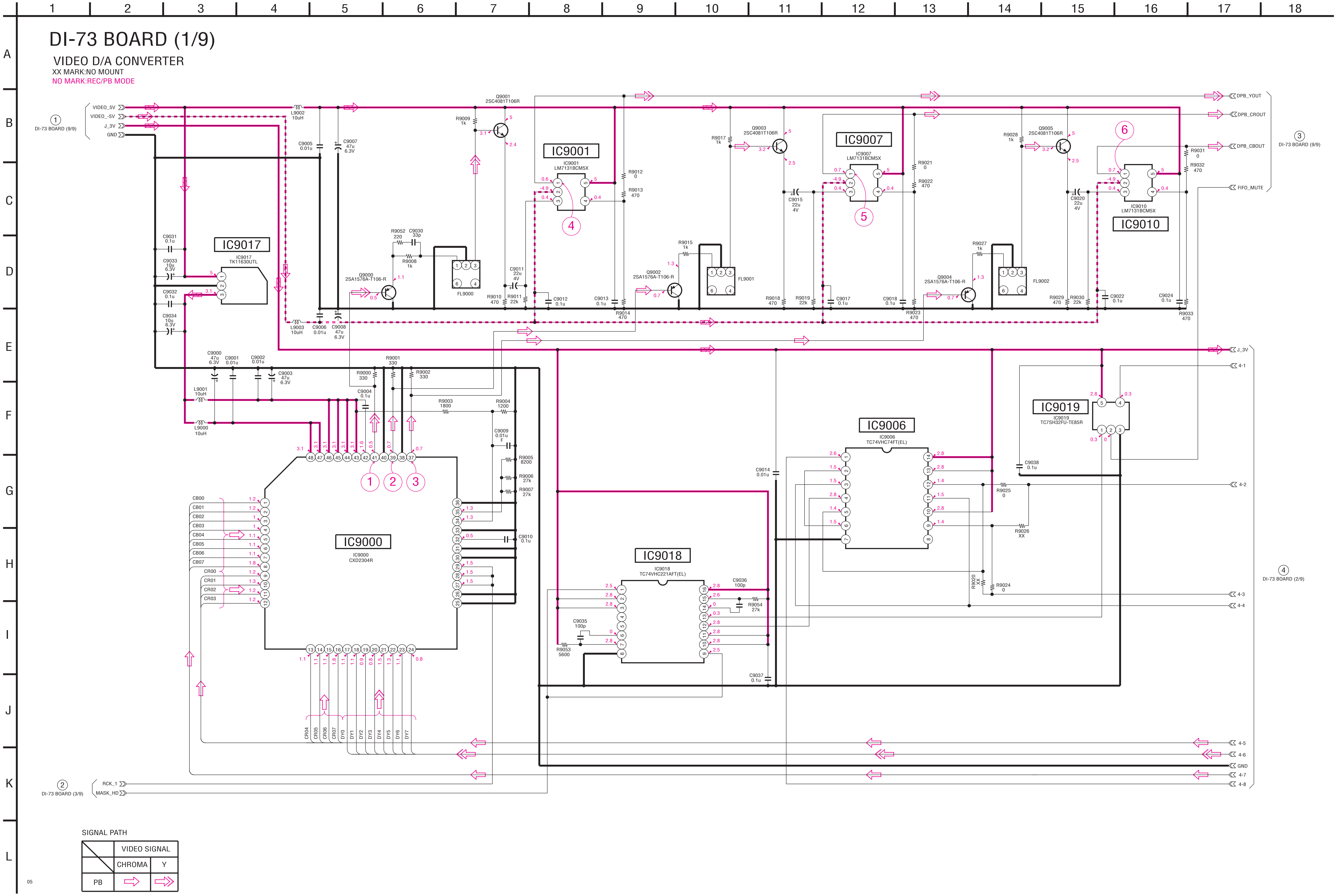
JC-21 (13/14) (AUDIO 2) • See page 4-119 for JC-21 printed wiring board.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
K
L
JC-21 BOARD (13/14)
AUDIO 2
XX MARK:NO MOUNT
CN7002 30P
AU X1 IN 30
AU Y1 IN(GND) 29
GND 28
AU X2 IN 27
AU Y2 IN(GND) 26
GND 25
AU X3 IN 24
AU Y3 IN(GND) 23
GND 22
AU X4 IN 21
AU Y4 IN(GND) 20
GND 19
TC IN 18
GND 17
TC OUT 16
GND 15
DSP CS 14
GND 13
DSP SI 12
GND 11
DSP SO 10
GND 9
DSP SCK 8
NC 7
NC 6
NC 5
NC 4
NC 3
NC 2
NC 1
VD-032 BOARD (11/16)
CN1626
THROUGH THE
FVJ-019 FLAT CABLE
(SEE PAGE 4-77)
CL7004
CL7005
CL7006
CL7007
CL7008
CL7009
CL7010
CL7011
CL7012
CL7013
CL7014
CL7015
CL7016
CL7017
CL7018
CL7019
CL7020
CL7021
CL7022
CL7023
CL7024
CL7025
CL7026
CL7027
CL7028
CL7029
CL7030
CL7031
R7106 XX
R7105 XX
R7104 XX
R7103 XX
R7102 XX
R7101 XX
R7100 XX
AU_X1_IN
AU_Y1_IN
AU_1_GND_IN
AU_X2_IN
AU_Y2_IN
AU_2_GND_IN
AU_X3_IN
AU_Y3_IN
AU_3_GND_IN
AU_X4_IN
AU_Y4_IN
AU_4_GND_IN
TC_IN
TC/GNDIN
TC_OUT
TC/GNDOUT
DSP_CS
GND
DSP_SI
DSP_SO
DSP_SCK
(69)
JC-21 BOARD (14/14)
R7068 XX
R7069 XX
R7070 XX
R7071 XX
R7072 XX
R7073 XX
R7074 XX
R7075 XX
GND
J_3V
(68)
JC-21 BOARD (14/14)
A.MON.1
A.MON.2
A.XUP
(63)
JC-21 BOARD (11/14)
R7066 XX
EMP
DEM1
DEM0
XPD_DA
XPD_AD
(67)
JC-21 BOARD (12/14)
IC7007 XX
CL7041
R7059 XX
R7060 XX
R7061 XX
R7062 XX
R7063 XX
R7304 XX
R7301 XX
R7058 XX
R7064 XX
C7026 XX
R7205 XX
CL7205
R7206 XX
CL7206
R7087 XX
R7086 XX
R7207 XX
CL7207
R7208 XX
CL7208
CL7043
CL7042
R7302 XX
R7303 XX
R7088 XX
R7089 XX
C7033 XX
XCS_DSP
IC7301 XX
C7301 XX
R7067 XX
X7001 XX
C7100 XX 6.3V
R7084 XX
R7085 XX
XVSP_SCK
VSP_SO
VSP_SI
JS7010 XX
(52)
JC-21 BOARD (10/14)
XSYS_RESET
(59)
JC-21 BOARD (11/14)
SIGNAL PATH
AUDIO SIGNAL
REC
05

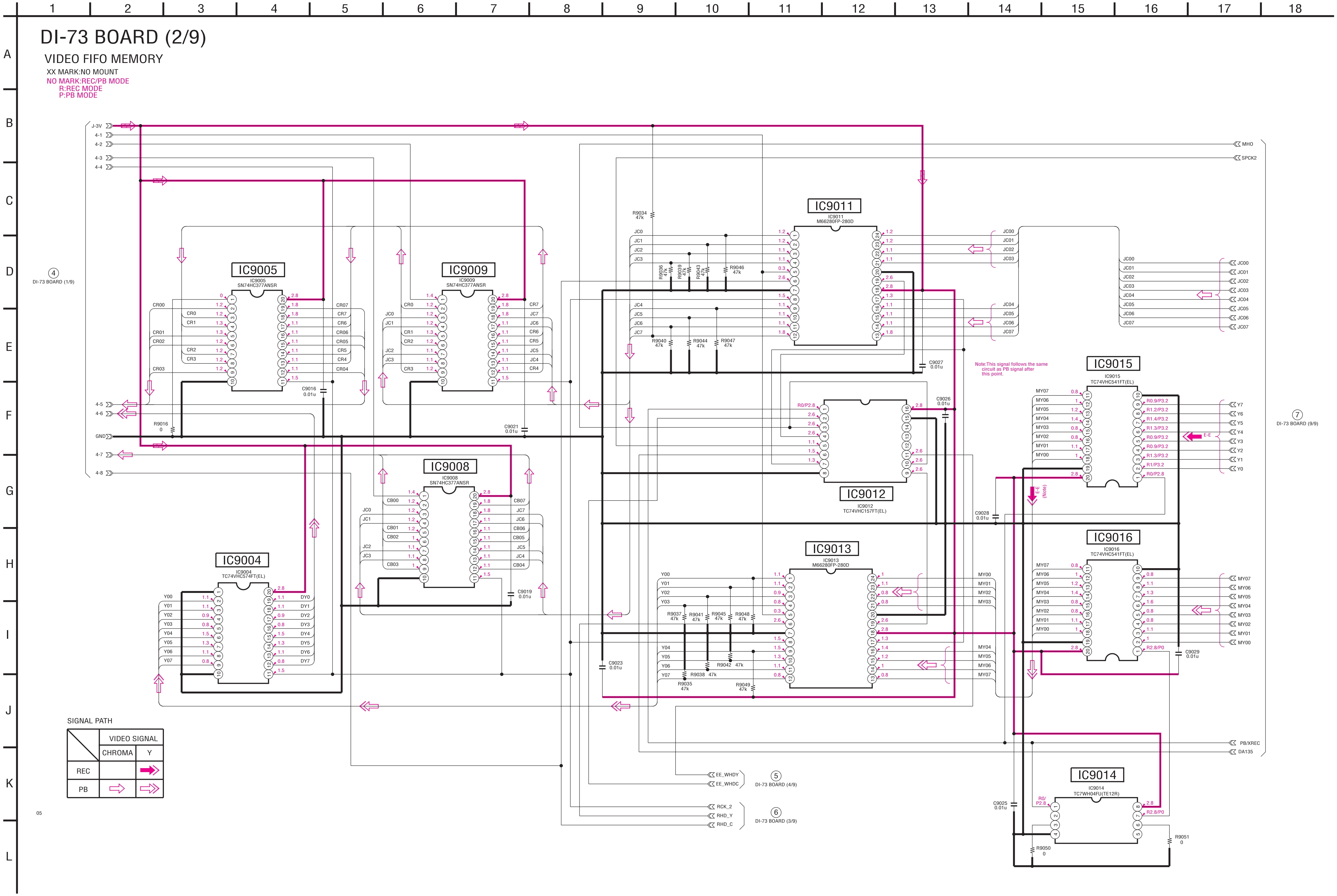
JC-21 (14/14) (POWER SUPPLY) • See page 4-119 for JC-21 printed wiring board.


JC-21 BOARD (14/14)
POWER SUPPLY
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
AUDIO SIGNAL
REC
PB
CN1100 9P
SW +6V
EVR +3V
VIDEO +5V
SW +3V
GND
VIDEO -5V
AUDIO +5V
AUDIO GND
AUDIO -5V
VD-032 BOARD (15/16) CN904
THROUGH THE JD-054 HARNESS
(SEE PAGE 4-86)
CL1100
CL1101
CL1102
CL1103
CL1104
CL1105
CL1106
CL1107
CL1108
IC1113
IC1113 PQ05TZ1U
IC1100
IC1100 TK11220BMCL
Q1131 SI2301DS-T1
Q1132 2SC4081T106R
R1234 XX
R1235 XX
R1236 0
R1230 10k
R1231 220k
R1232 10k
R1233 15k
R1229 0
R1238 XX
R1237 0
R1100 XX
C1196 0.033u
C1197 1u
C1195 47u 6.3V
C1191 0.01u
C1189 0.01u
C1190 47u 6.3V
C1108 XX
C1102 0.01u
C1104 10u 6.3V
C1192 0.1u
C1193 XX 6.3V
CL1179
CL1180
CL1182
CL1183
CL1184
CL1185
CL1186
CL1187
R1224 XX
R1225 XX
R1226 XX
R1227 XX
R1228 XX
LND101 GND
LND102 GND
LND103 GND
LND104 GND
LND105 GND
LND106 GND
LND107 GND
LND108 GND
R1145 XX
R1146 XX
R1147 XX
R1148 XX
R1149 XX
CL1140
CL1141
CL1142
CL1143
CL1144
A.-5V
AUDIO_GND
A.+5V
GND
66 JC-21 BOARD (12/14)
56 JC-21 BOARD (10/14)
47 JC-21 BOARD (9/14)
UNSW_3.0V
SW_6V
62 JC-21 BOARD (11/14)
7 JC-21 BOARD (1/14)
DPB_CBOUT
DPB_CROUT
DPB_YOUT
29 JC-21 BOARD (5/14)
AFH
JC00
JC01
JC02
JC03
JC04
JC05
JC06
JC07
Y0
Y1
Y2
Y3
Y4
Y5
Y6
Y7
E-E
MY00
MY01
MY02
MY03
MY04
MY05
MY06
MY07
MHO
31 JC-21 BOARD (5/14)
VFD_OE
DA135
OSD_HD
VFD_HD
70 JC-21 BOARD (11/14)
PAL/XNT
21 JC-21 BOARD (4/14)
SPCK2
PB/XREC
6 JC-21 BOARD (1/14)
VD_HD
V_FROM_SYNCGEN
VFD_VD
CN8001 120P
DI-73 BOARD (9/9) CN5500 (SEE PAGE 4-55)
48 JC-21 BOARD (9/14)
FIFO_MUTE
51 JC-21 BOARD (10/14)
XMUTN
60 JC-21 BOARD (11/14)
XSYS_RESET
64 JC-21 BOARD (12/14)
AU_CH1_OUT
AU_GND1_OUT
AU_CH2_OUT
AU_GND2_OUT
AU_CH3_OUT
AU_GND3_OUT
AU_CH4_OUT
AU_GND4_OUT
J_3V
61 JC-21 BOARD (11/14)
65 JC-21 BOARD (12/14)
J_1.9V
VIDEO_+5V
43 JC-21 BOARD (7/14)
25 JC-21 BOARD (5/14)
37 JC-21 BOARD (6/14)
16 JC-21 BOARD (3/14)
46 JC-21 BOARD (9/14)
68 JC-21 BOARD (13/14)
20 JC-21 BOARD (4/14)
VIDEO_-5V
+5V
10 JC-21 BOARD (2/14)
1 JC-21 BOARD (1/14)
LOCK_MCK
OCK
SFD_FCK
SFD_LRCK
SFD_BCK
SOA
SIC
BCK
LRCK
SOB
SID
36 JC-21 BOARD (6/14)
XCS_DSP
XVSP_SCK
VSP_SO
VSP_SI
53 JC-21 BOARD (10/14)
AU_X1_IN
AU_Y1_IN
AU_1_GND_IN
AU_X2_IN
AU_Y2_IN
AU_2_GND_IN
AU_X3_IN
AU_Y3_IN
AU_3_GND_IN
AU_X4_IN
AU_Y4_IN
AU_4_GND_IN
TC_IN
TC/GNDIN
TC_OUT
TC/GNDOUT
DSP_CS
DSP_SI
DSP_SO
DSP_SCK
69 JC-21 BOARD (13/14)
05

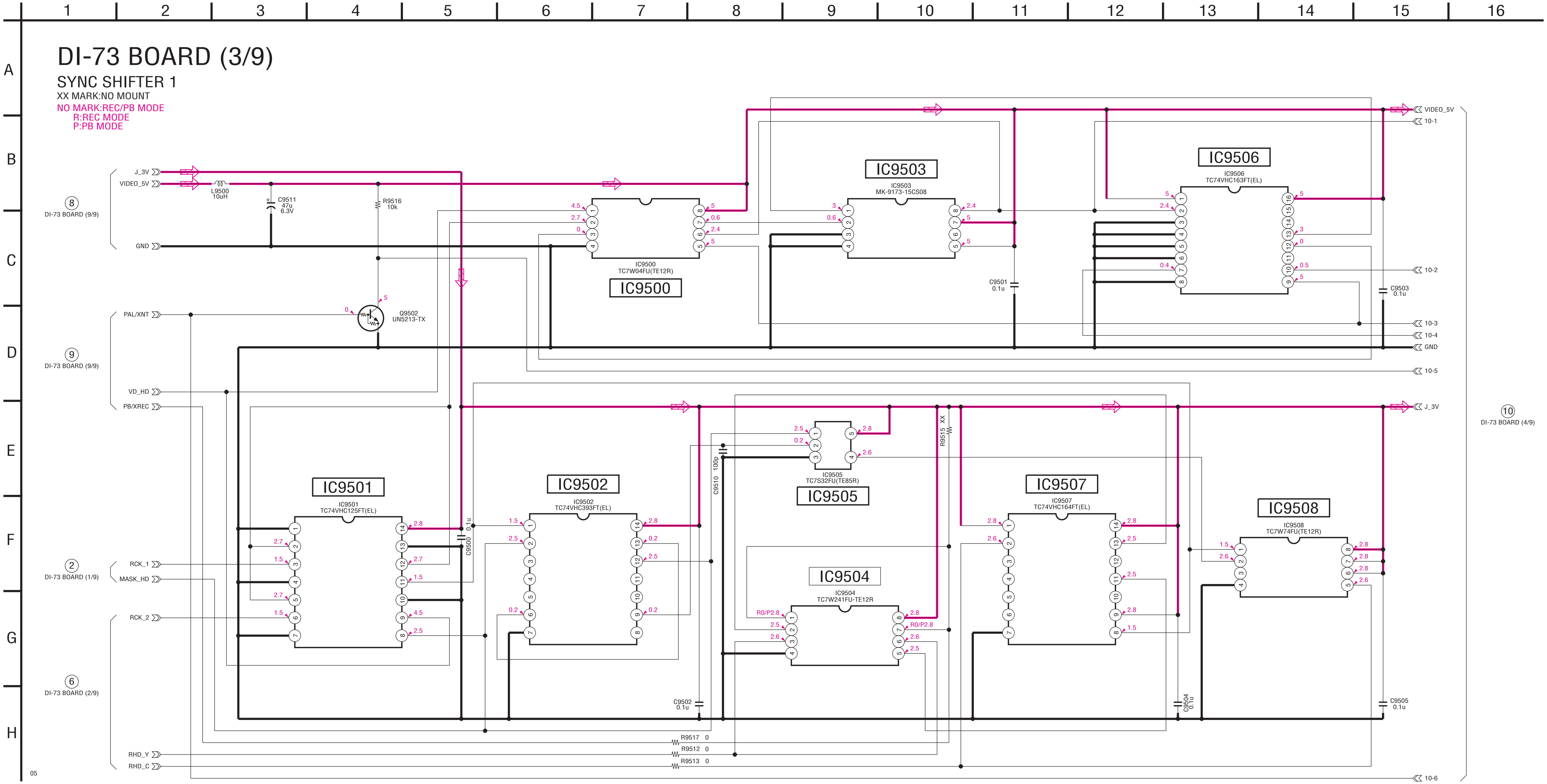
DI-73 (1/9) (VIDEO D/A CONVERTER) • See page 4-123 for DI-73 printed wiring board. • See page 4-167 for waveforms.


DI-73 BOARD (1/9)
VIDEO D/A CONVERTER
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
① DI-73 BOARD (9/9)
VIDEO_5V
VIDEO_-5V
J_3V
GND
② DI-73 BOARD (3/9)
RCK_1
MASK_HD
③ DI-73 BOARD (9/9)
DPB_YOUT
DPB_CROUT
DPB_CBOUT
FIFO_MUTE
④ DI-73 BOARD (2/9)
J_3V
4-1
4-2
4-3
4-4
4-5
4-6
GND
4-7
4-8
IC9000 CXD2304R
IC9001 LM7131BCM5X
IC9006 TC74VHC74FT(EL)
IC9007 LM7131BCM5X
IC9010 LM7131BCM5X
IC9017 TK11630UTL
IC9018 TC74VHC221AFT(EL)
IC9019 TC7SH32FU-TE85R
Q9000 2SA1576A-T106-R
Q9001 2SC4081T106R
Q9002 2SA1576A-T106-R
Q9003 2SC4081T106R
Q9004 2SA1576A-T106-R
Q9005 2SC4081T106R
FL9000
FL9001
FL9002
CB00
CB01
CB02
CB03
CB04
CB05
CB06
CB07
CR00
CR01
CR02
CR03
CR04
CR05
CR06
CR07
DY0
DY1
DY2
DY3
DY4
DY5
DY6
DY7
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
PB
05
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
A
B
C
D
E
F
G
H
I
J
K
L

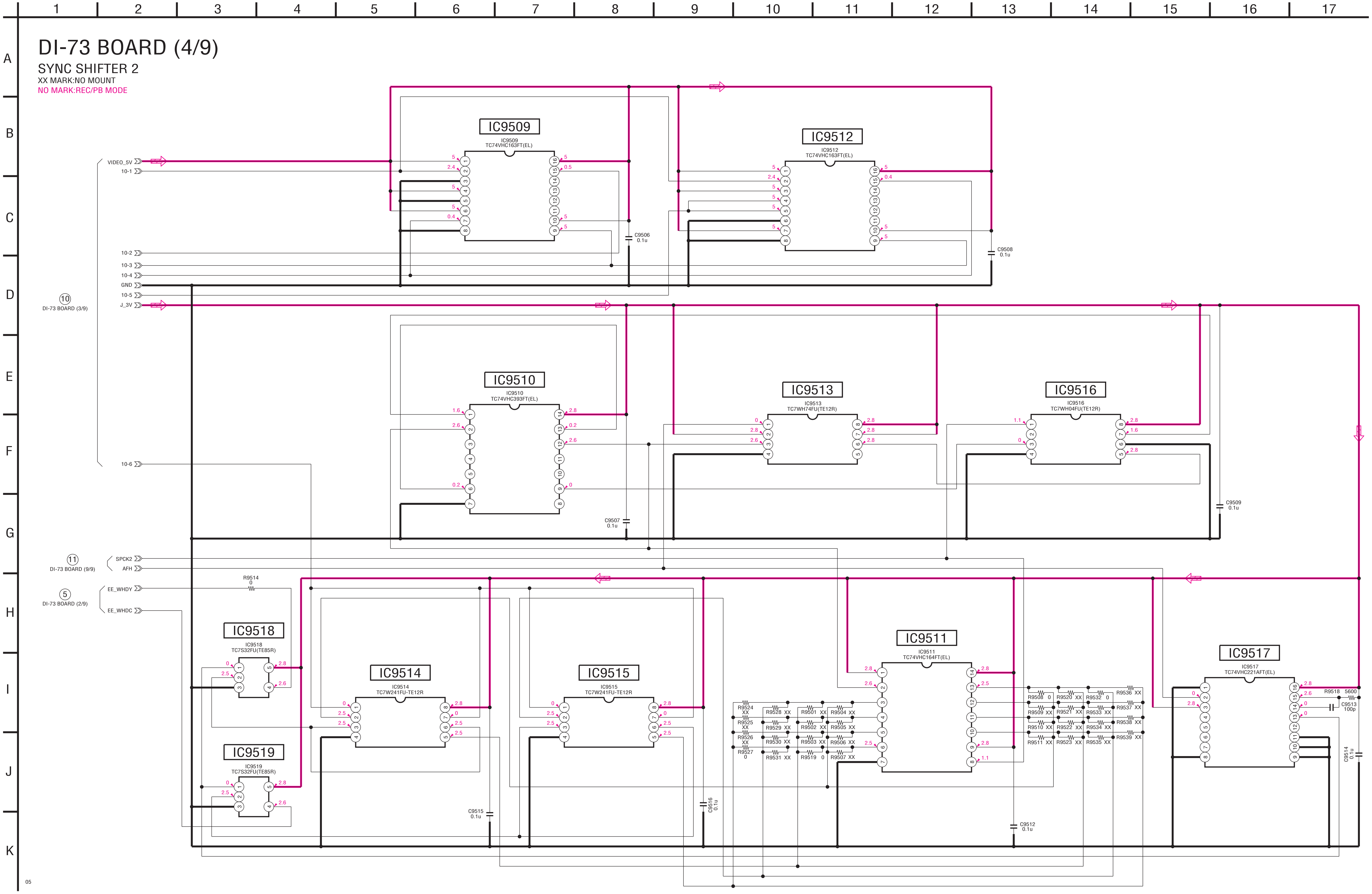
DI-73 (2/9) (VIDEO FIFO MEMORY) • See page 4-123 for DI-73 printed wiring board.


DI-73 BOARD (2/9)
VIDEO FIFO MEMORY
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
IC9005
SN74HC377ANSR
IC9009
SN74HC377ANSR
IC9011
M66280FP-280D
IC9012
TC74VHC157FT(EL)
IC9015
TC74VHC541FT(EL)
IC9008
SN74HC377ANSR
IC9004
TC74VHC574FT(EL)
IC9013
M66280FP-280D
IC9016
TC74VHC541FT(EL)
IC9014
TC7WH04FU(TE12R)
④ DI-73 BOARD (1/9)
⑦ DI-73 BOARD (9/9)
⑤ DI-73 BOARD (4/9)
⑥ DI-73 BOARD (3/9)
Note:This signal follows the same circuit as PB signal after this point.
J-3V
4-1
4-2
4-3
4-4
4-5
4-6
GND
4-7
4-8
MHO
SPCK2
PB/XREC
DA135
EE_WHDY
EE_WHDC
RCK_2
RHD_Y
RHD_C
E-E
(Note)
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
REC
PB
05

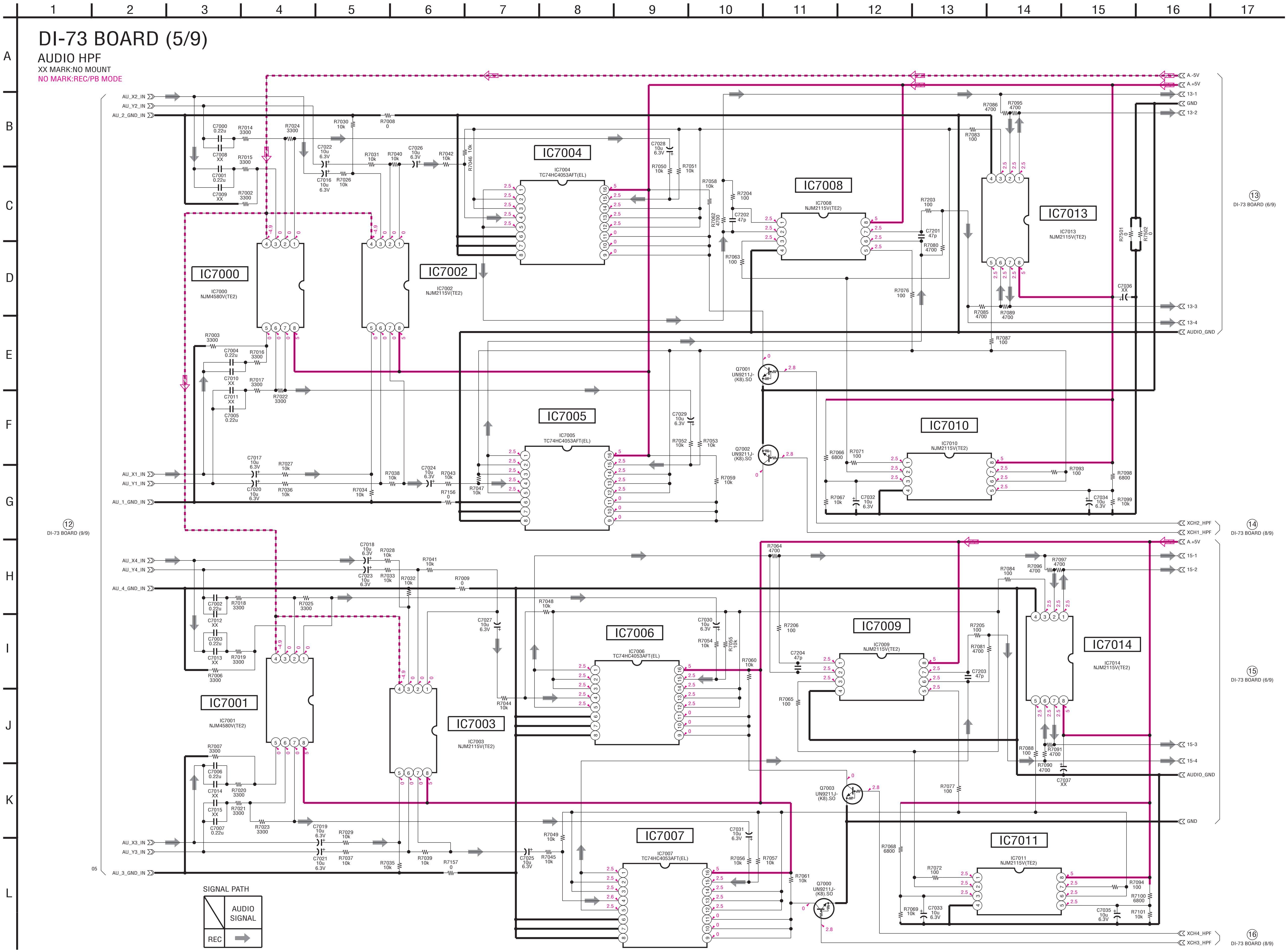
DI-73 (3/9) (SYNC SHIFTER 1) • See page 4-123 for DI-73 printed wiring board.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
DI-73 BOARD (3/9)
SYNC SHIFTER 1
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
⑧ DI-73 BOARD (9/9)
J_3V
VIDEO_5V
GND
L9500 10uH
C9511 47u 6.3V
R9516 10k
Q9502 UN5213-TX
⑨ DI-73 BOARD (9/9)
PAL/XNT
VD_HD
PB/XREC
② DI-73 BOARD (1/9)
RCK_1
MASK_HD
RCK_2
⑥ DI-73 BOARD (2/9)
RHD_Y
RHD_C
IC9500
IC9500 TC7W04FU(TE12R)
IC9503
IC9503 MK-9173-15CS08
IC9506
IC9506 TC74VHC163FT(EL)
IC9501
IC9501 TC74VHC125FT(EL)
IC9502
IC9502 TC74VHC393FT(EL)
IC9505
IC9505 TC7S32FU(TE85R)
IC9504
IC9504 TC7W241FU-TE12R
IC9507
IC9507 TC74VHC164FT(EL)
IC9508
IC9508 TC7W74FU(TE12R)
C9500 0.1u
C9501 0.1u
C9502 0.1u
C9503 0.1u
C9504 0.1u
C9505 0.1u
C9510 100p
R9515 XX
R9517 0
R9512 0
R9513 0
R0/P2.8
VIDEO_5V
10-1
10-2
10-3
10-4
GND
10-5
J_3V
10-6
⑩ DI-73 BOARD (4/9)
05

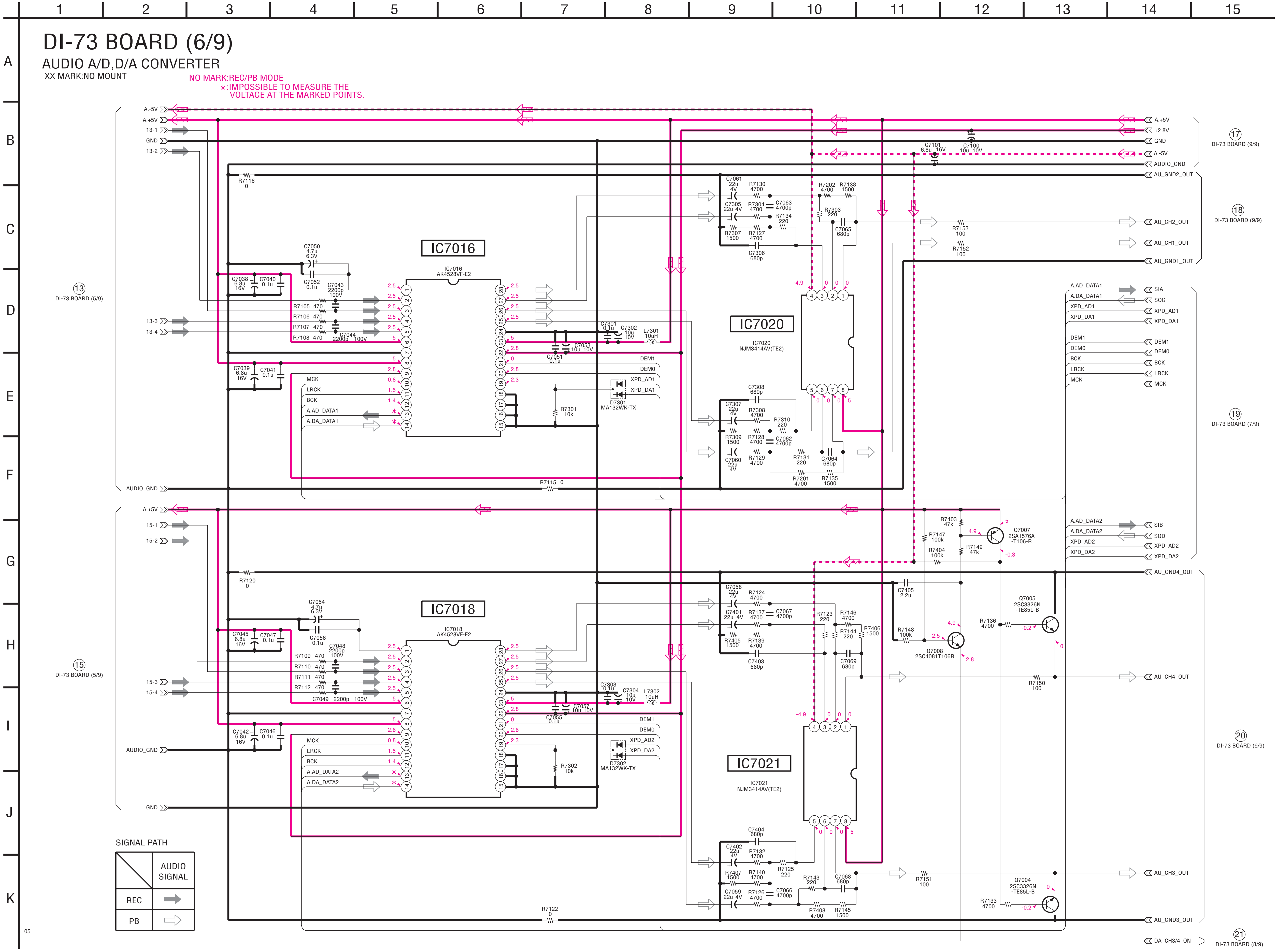
DI-73 (4/9) (SYNC SHIFTER 2) • See page 4-123 for DI-73 printed wiring board.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
DI-73 BOARD (4/9)
SYNC SHIFTER 2
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
IC9509
IC9509 TC74VHC163FT(EL)
IC9512
IC9512 TC74VHC163FT(EL)
IC9510
IC9510 TC74VHC393FT(EL)
IC9513
IC9513 TC7WH74FU(TE12R)
IC9516
IC9516 TC7WH04FU(TE12R)
IC9518
IC9518 TC7S32FU(TE85R)
IC9519
IC9519 TC7S32FU(TE85R)
IC9514
IC9514 TC7W241FU-TE12R
IC9515
IC9515 TC7W241FU-TE12R
IC9511
IC9511 TC74VHC164FT(EL)
IC9517
IC9517 TC74VHC221AFT(EL)
VIDEO_5V
10-1
10-2
10-3
10-4
GND
10-5
J_3V
10-6
⑩ DI-73 BOARD (3/9)
SPCK2
AFH
⑪ DI-73 BOARD (9/9)
EE_WHDY
EE_WHDC
⑤ DI-73 BOARD (2/9)
R9514 0
C9506 0.1u
C9508 0.1u
C9507 0.1u
C9509 0.1u
C9515 0.1u
C9516 0.1u
C9512 0.1u
C9513 100p
C9514 0.1u
R9518 5600
R9524 XX
R9525 XX
R9526 XX
R9527 0
R9528 XX
R9529 XX
R9530 XX
R9531 XX
R9501 XX
R9502 XX
R9503 XX
R9519 0
R9504 XX
R9505 XX
R9506 XX
R9507 XX
R9508 0
R9509 XX
R9510 XX
R9511 XX
R9520 XX
R9521 XX
R9522 XX
R9523 XX
R9532 0
R9533 XX
R9534 XX
R9535 XX
R9536 XX
R9537 XX
R9538 XX
R9539 XX
05

DI-73 (5/9) (AUDIO HPF) • See page 4-123 for DI-73 printed wiring board.


DI-73 BOARD (5/9)
AUDIO HPF
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
A B C D E F G H I J K L
AU_X2_IN
AU_Y2_IN
AU_2_GND_IN
AU_X1_IN
AU_Y1_IN
AU_1_GND_IN
AU_X4_IN
AU_Y4_IN
AU_4_GND_IN
AU_X3_IN
AU_Y3_IN
AU_3_GND_IN
IC7000 NJM4580V(TE2)
IC7001 NJM4580V(TE2)
IC7002 NJM2115V(TE2)
IC7003 NJM2115V(TE2)
IC7004 TC74HC4053AFT(EL)
IC7005 TC74HC4053AFT(EL)
IC7006 TC74HC4053AFT(EL)
IC7007 TC74HC4053AFT(EL)
IC7008 NJM2115V(TE2)
IC7009 NJM2115V(TE2)
IC7010 NJM2115V(TE2)
IC7011 NJM2115V(TE2)
IC7013 NJM2115V(TE2)
IC7014 NJM2115V(TE2)
Q7000 UN9211J-(K8).SO
Q7001 UN9211J-(K8).SO
Q7002 UN9211J-(K8).SO
Q7003 UN9211J-(K8).SO
A.-5V
A.+5V
13-1
GND
13-2
13-3
13-4
AUDIO_GND
XCH2_HPF
XCH1_HPF
A.+5V
15-1
15-2
15-3
15-4
AUDIO_GND
GND
XCH4_HPF
XCH3_HPF
⑫ DI-73 BOARD (9/9)
⑬ DI-73 BOARD (6/9)
⑭ DI-73 BOARD (8/9)
⑮ DI-73 BOARD (6/9)
⑯ DI-73 BOARD (8/9)
05
SIGNAL PATH
AUDIO SIGNAL
REC

DI-73 (6/9) (AUDIO A/D, D/A CONVERTER) • **See page 4-123 for DI-73 printed wiring board.**


DI-73 BOARD (6/9)
AUDIO A/D,D/A CONVERTER
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
∗:IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.
1
2
3
4
5
6
7
8
9
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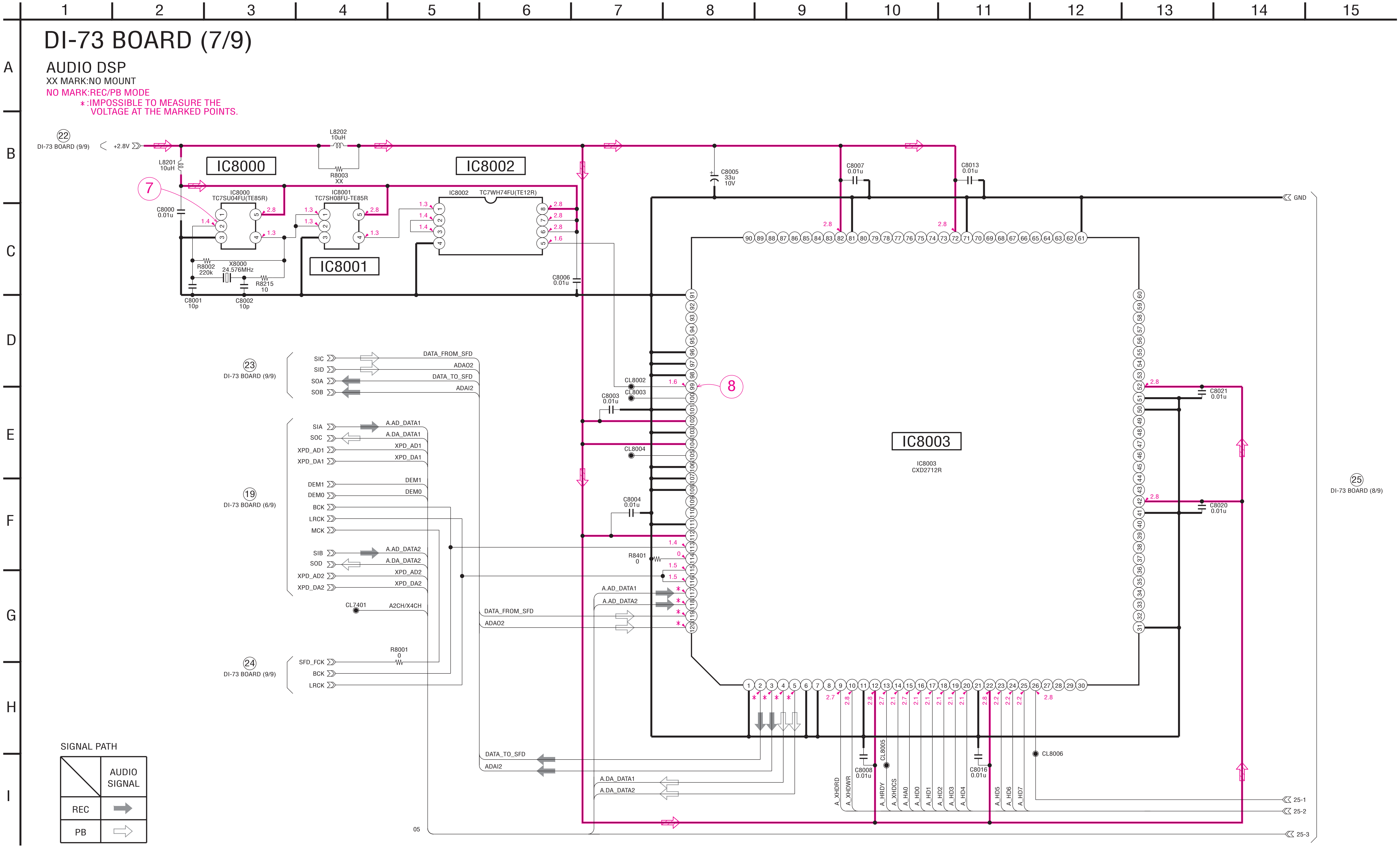
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
K
IC7016
IC7016 AK4528VF-E2
IC7018
IC7018 AK4528VF-E2
IC7020
IC7020 NJM3414AV(TE2)
IC7021
IC7021 NJM3414AV(TE2)
A.-5V
A.+5V
13-1
GND
13-2
13-3
13-4
AUDIO_GND
15-1
15-2
15-3
15-4
⑬ DI-73 BOARD (5/9)
⑮ DI-73 BOARD (5/9)
A.+5V
+2.8V
GND
A.-5V
AUDIO_GND
AU_GND2_OUT
⑰ DI-73 BOARD (9/9)
AU_CH2_OUT
AU_CH1_OUT
AU_GND1_OUT
⑱ DI-73 BOARD (9/9)
SIA
SOC
XPD_AD1
XPD_DA1
DEM1
DEM0
BCK
LRCK
MCK
⑲ DI-73 BOARD (7/9)
SIB
SOD
XPD_AD2
XPD_DA2
AU_GND4_OUT
AU_CH4_OUT
⑳ DI-73 BOARD (9/9)
AU_CH3_OUT
AU_GND3_OUT
DA_CH3/4_ON
㉑ DI-73 BOARD (8/9)
MCK
LRCK
BCK
A.AD_DATA1
A.DA_DATA1
A.AD_DATA2
A.DA_DATA2
D7301 MA132WK-TX
D7302 MA132WK-TX
Q7005 2SC3326N-TE85L-B
Q7007 2SA1576A-T106-R
Q7008 2SC4081T106R
Q7004 2SC3326N-TE85L-B
L7301 10uH
L7302 10uH
R7116 0
R7115 0
R7120 0
R7122 0
R7301 10k
R7302 10k
R7105 470
R7106 470
R7107 470
R7108 470
R7109 470
R7110 470
R7111 470
R7112 470
R7153 100
R7152 100
R7150 100
R7151 100
R7403 47k
R7147 100k
R7404 100k
R7149 47k
R7148 100k
R7136 4700
R7133 4700
C7050 4.7u 6.3V
C7054 4.7u 6.3V
C7101 6.8u 16V
C7100 10u 10V
C7405 2.2u
-4.9
4.9
-0.2
-0.3
2.8
2.5
SIGNAL PATH
AUDIO SIGNAL
REC
PB
05

DI-73 (7/9) (AUDIO DSP) • See page 4-123 for DI-73 printed wiring board. • See page 4-167 for waveforms.


DI-73 BOARD (7/9)
AUDIO DSP
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
*:IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.
1
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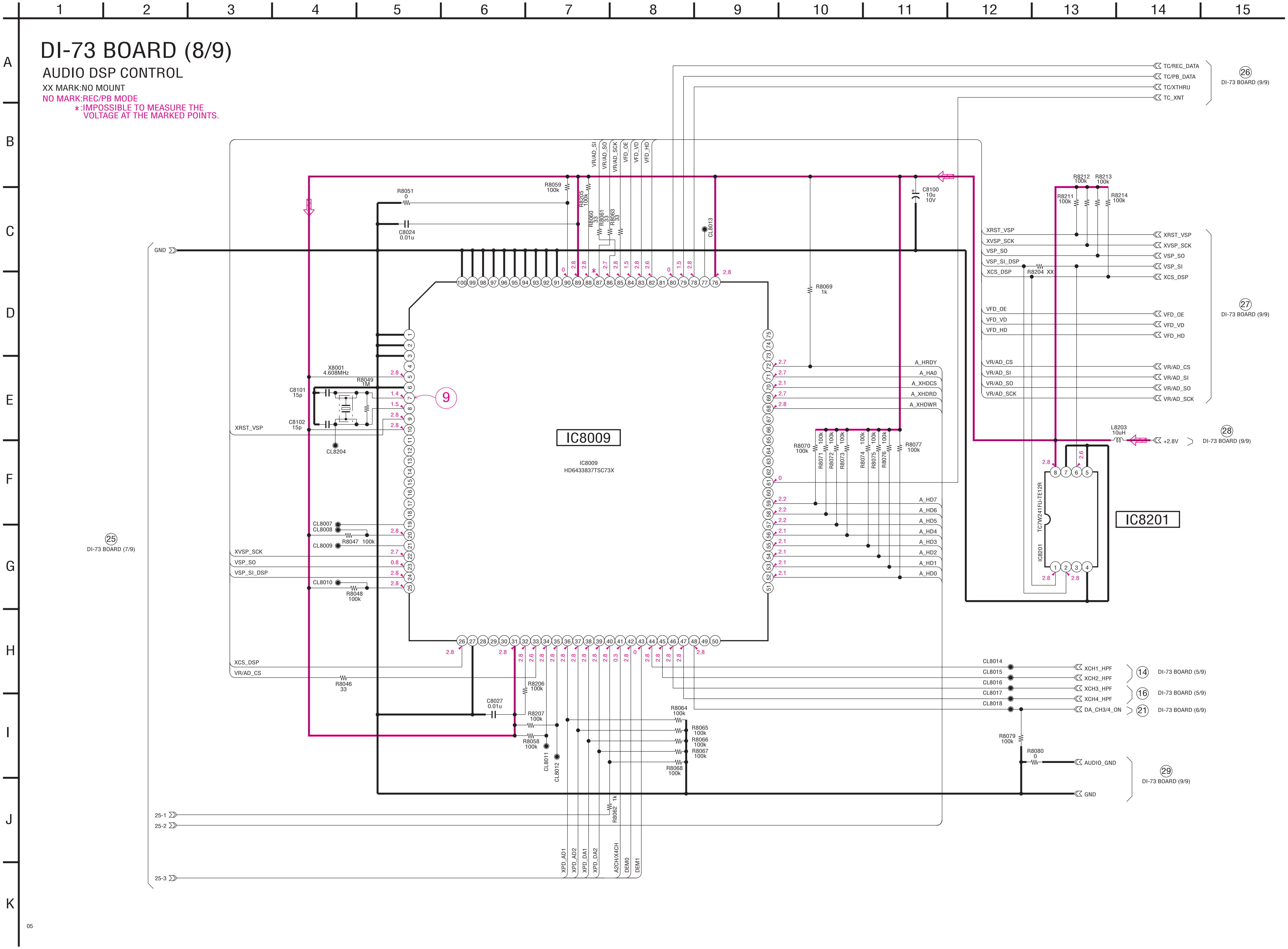
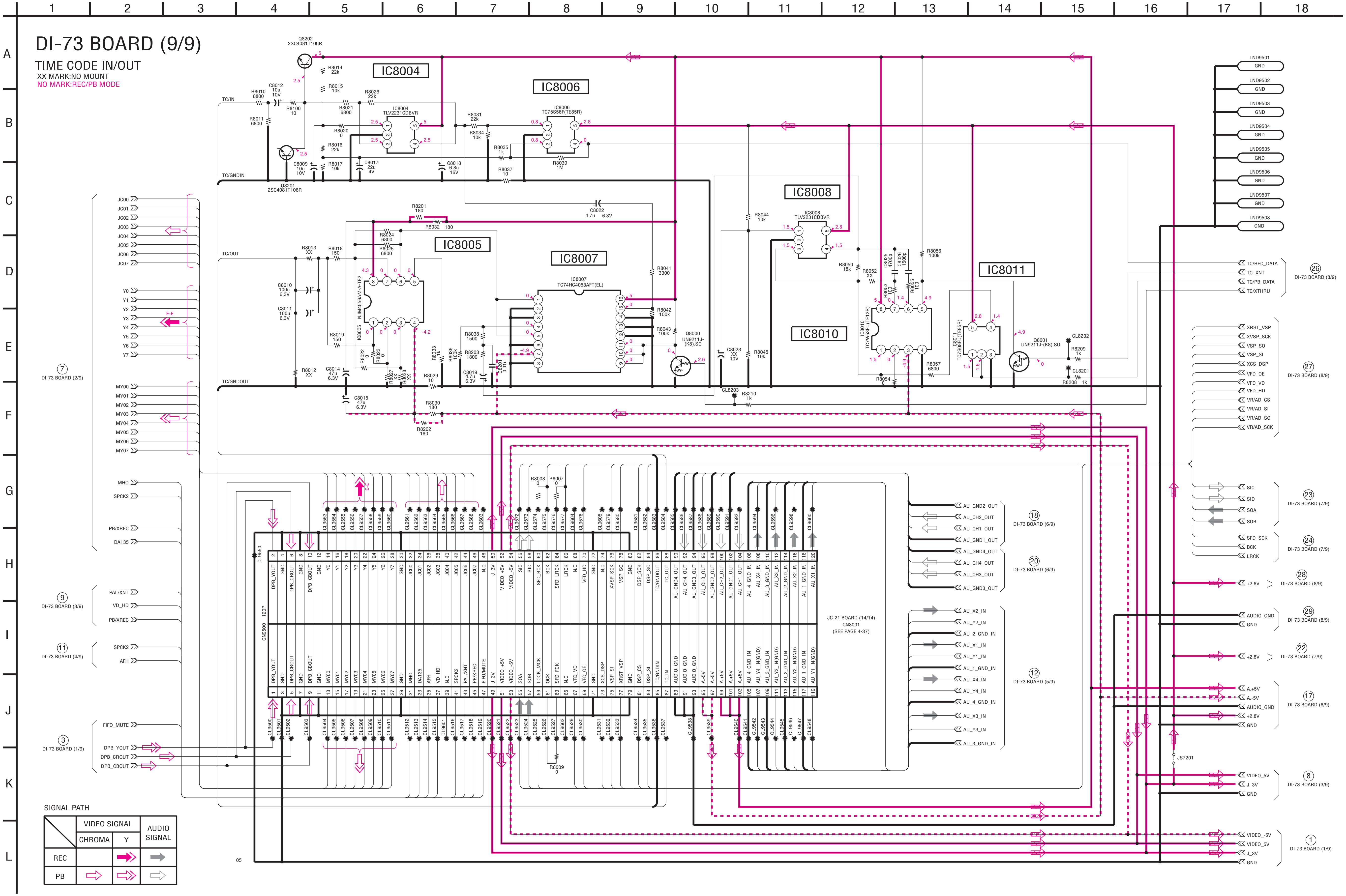
15
A
B
C
D
E
F
G
H
I
㉒ DI-73 BOARD (9/9)
+2.8V
L8201 10uH
L8202 10uH
R8003 XX
IC8000
IC8000 TC7SU04FU(TE85R)
IC8001
IC8001 TC7SH08FU-TE85R
IC8002
IC8002 TC7WH74FU(TE12R)
C8000 0.01u
R8002 220k
X8000 24.576MHz
R8215 10
C8001 10p
C8002 10p
C8006 0.01u
C8005 33u 10V
C8007 0.01u
C8013 0.01u
GND
7
8
㉓ DI-73 BOARD (9/9)
SIC
SID
SOA
SOB
DATA_FROM_SFD
ADAO2
DATA_TO_SFD
ADAI2
⑲ DI-73 BOARD (6/9)
SIA
SOC
XPD_AD1
XPD_DA1
DEM1
DEM0
BCK
LRCK
MCK
SIB
SOD
XPD_AD2
XPD_DA2
A.AD_DATA1
A.DA_DATA1
A.AD_DATA2
A.DA_DATA2
CL7401
A2CH/X4CH
㉔ DI-73 BOARD (9/9)
SFD_FCK
BCK
LRCK
R8001 0
CL8002
CL8003
C8003 0.01u
CL8004
C8004 0.01u
R8401 0
IC8003
IC8003 CXD2712R
C8021 0.01u
C8020 0.01u
㉕ DI-73 BOARD (8/9)
C8008 0.01u
CL8005
C8016 0.01u
CL8006
A_XHDRD
A_XHDWR
A_HRDY
A_XHDCS
A_HA0
A_HD0
A_HD1
A_HD2
A_HD3
A_HD4
A_HD5
A_HD6
A_HD7
25-1
25-2
25-3
05
SIGNAL PATH
AUDIO SIGNAL
REC
PB

DI-73 (8/9) (AUDIO DSP CONTROL) • See page 4-123 for DI-73 printed wiring board. • See page 4-167 for waveform.


DI-73 BOARD (8/9)
AUDIO DSP CONTROL
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
∗:IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.
IC8009
IC8009 HD6433837TSC73X
IC8201
IC8201 TC7W241FU-TE12R
X8001 4.608MHz
R8049 1M
C8101 15p
C8102 15p
CL8204
R8051 0
C8024 0.01u
R8059 100k
C8100 10u 10V
L8203 10uH
R8069 1k
R8070 100k
R8077 100k
R8211 100k
R8212 100k
R8213 100k
R8214 100k
R8204 XX
R8047 100k
R8048 100k
R8046 33
R8206 100k
R8207 100k
R8058 100k
C8027 0.01u
R8064 100k
R8065 100k
R8066 100k
R8067 100k
R8068 100k
R8079 100k
R8080 0
R8062 1k
CL8007
CL8008
CL8009
CL8010
CL8011
CL8012
CL8013
CL8014
CL8015
CL8016
CL8017
CL8018
GND
XRST_VSP
XVSP_SCK
VSP_SO
VSP_SI_DSP
XCS_DSP
VR/AD_CS
VR/AD_SI
VR/AD_SO
VR/AD_SCK
VFD_OE
VFD_VD
VFD_HD
A_HRDY
A_HA0
A_XHDCS
A_XHDRD
A_XHDWR
A_HD7
A_HD6
A_HD5
A_HD4
A_HD3
A_HD2
A_HD1
A_HD0
TC/REC_DATA
TC/PB_DATA
TC/XTHRU
TC_XNT
VSP_SI
+2.8V
XCH1_HPF
XCH2_HPF
XCH3_HPF
XCH4_HPF
XDA_CH3/4_ON
AUDIO_GND
XPD_AD1
XPD_AD2
XPD_DA1
XPD_DA2
A2CH/X4CH
DEM0
DEM1
25-1
25-2
25-3
㉕ DI-73 BOARD (7/9)
㉖ DI-73 BOARD (9/9)
㉗ DI-73 BOARD (9/9)
㉘ DI-73 BOARD (9/9)
⑭ DI-73 BOARD (5/9)
⑯ DI-73 BOARD (5/9)
㉑ DI-73 BOARD (6/9)
㉙ DI-73 BOARD (9/9)
⑨
05

DI-73 (9/9) (TIME CODE IN/OUT) • See page 4-123 for DI-73 printed wiring board.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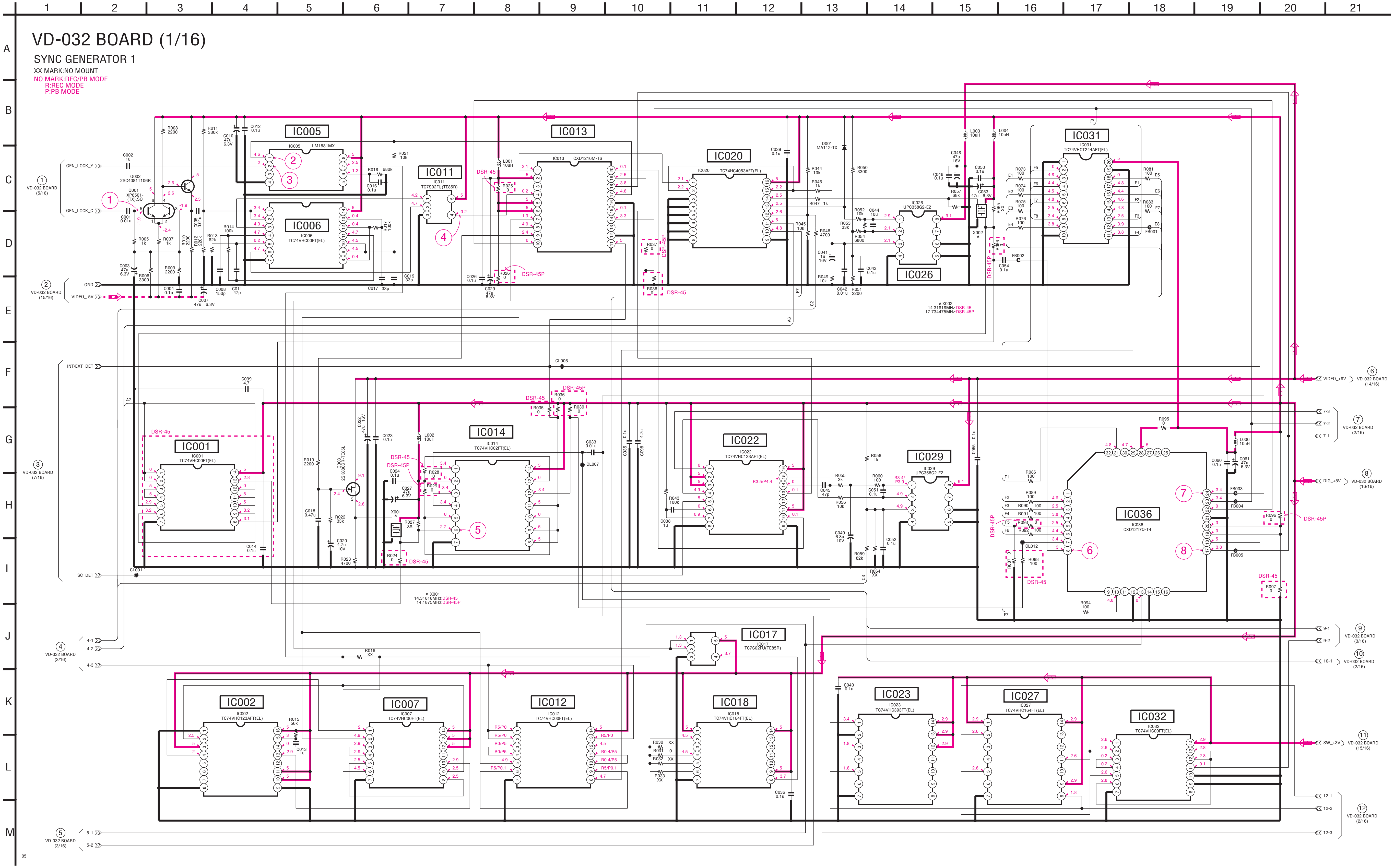
I
J
K
L
DI-73 BOARD (9/9)
TIME CODE IN/OUT
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
IC8004
TLV2231CDBVR
IC8005
NJM4556AM-A-TE2
IC8006
TC7S56F(TE85R)
IC8007
TC74HC4053AFT(EL)
IC8008
TLV2231CDBVR
IC8010
TC7W53FU(TE12R)
IC8011
TC7S08FU(TE85R)
Q8201
2SC4081T106R
Q8202
2SC4081T106R
Q8000
UN9211J-(K8).SO
Q8001
UN9211J-(K8).SO
TC/IN
TC/GNDIN
TC/OUT
TC/GNDOUT
JC00
JC01
JC02
JC03
JC04
JC05
JC06
JC07
Y0
Y1
Y2
Y3
Y4
Y5
Y6
Y7
MY00
MY01
MY02
MY03
MY04
MY05
MY06
MY07
MHO
SPCK2
PB/XREC
DA135
PAL/XNT
VD_HD
AFH
FIFO_MUTE
DPB_YOUT
DPB_CROUT
DPB_CBOUT
⑦ DI-73 BOARD (2/9)
⑨ DI-73 BOARD (3/9)
⑪ DI-73 BOARD (4/9)
③ DI-73 BOARD (1/9)
CN9500 120P
JC-21 BOARD (14/14)
CN8001
(SEE PAGE 4-37)
LND9501 GND
LND9502 GND
LND9503 GND
LND9504 GND
LND9505 GND
LND9506 GND
LND9507 GND
LND9508 GND
TC/REC_DATA
TC_XNT
TC/PB_DATA
TC/XTHRU
㉖ DI-73 BOARD (8/9)
XRST_VSP
XVSP_SCK
VSP_SO
VSP_SI
XCS_DSP
VFD_OE
VFD_VD
VFD_HD
VR/AD_CS
VR/AD_SI
VR/AD_SO
VR/AD_SCK
㉗ DI-73 BOARD (8/9)
SIC
SID
SOA
SOB
㉓ DI-73 BOARD (7/9)
SFD_SCK
BCK
LRCK
㉔ DI-73 BOARD (7/9)
+2.8V
㉘ DI-73 BOARD (8/9)
AUDIO_GND
GND
㉙ DI-73 BOARD (8/9)
+2.8V
㉒ DI-73 BOARD (7/9)
A.+5V
A.-5V
AUDIO_GND
+2.8V
GND
⑰ DI-73 BOARD (6/9)
VIDEO_5V
J_3V
GND
⑧ DI-73 BOARD (3/9)
VIDEO_-5V
VIDEO_5V
J_3V
GND
① DI-73 BOARD (1/9)
AU_GND2_OUT
AU_CH2_OUT
AU_CH1_OUT
AU_GND1_OUT
⑱ DI-73 BOARD (6/9)
AU_GND4_OUT
AU_CH4_OUT
AU_CH3_OUT
AU_GND3_OUT
⑳ DI-73 BOARD (6/9)
AU_X2_IN
AU_Y2_IN
AU_2_GND_IN
AU_X1_IN
AU_Y1_IN
AU_1_GND_IN
AU_X4_IN
AU_Y4_IN
AU_4_GND_IN
AU_X3_IN
AU_Y3_IN
AU_3_GND_IN
⑫ DI-73 BOARD (5/9)
JS7201
CL8201
CL8202
CL8203
R8009 0
05

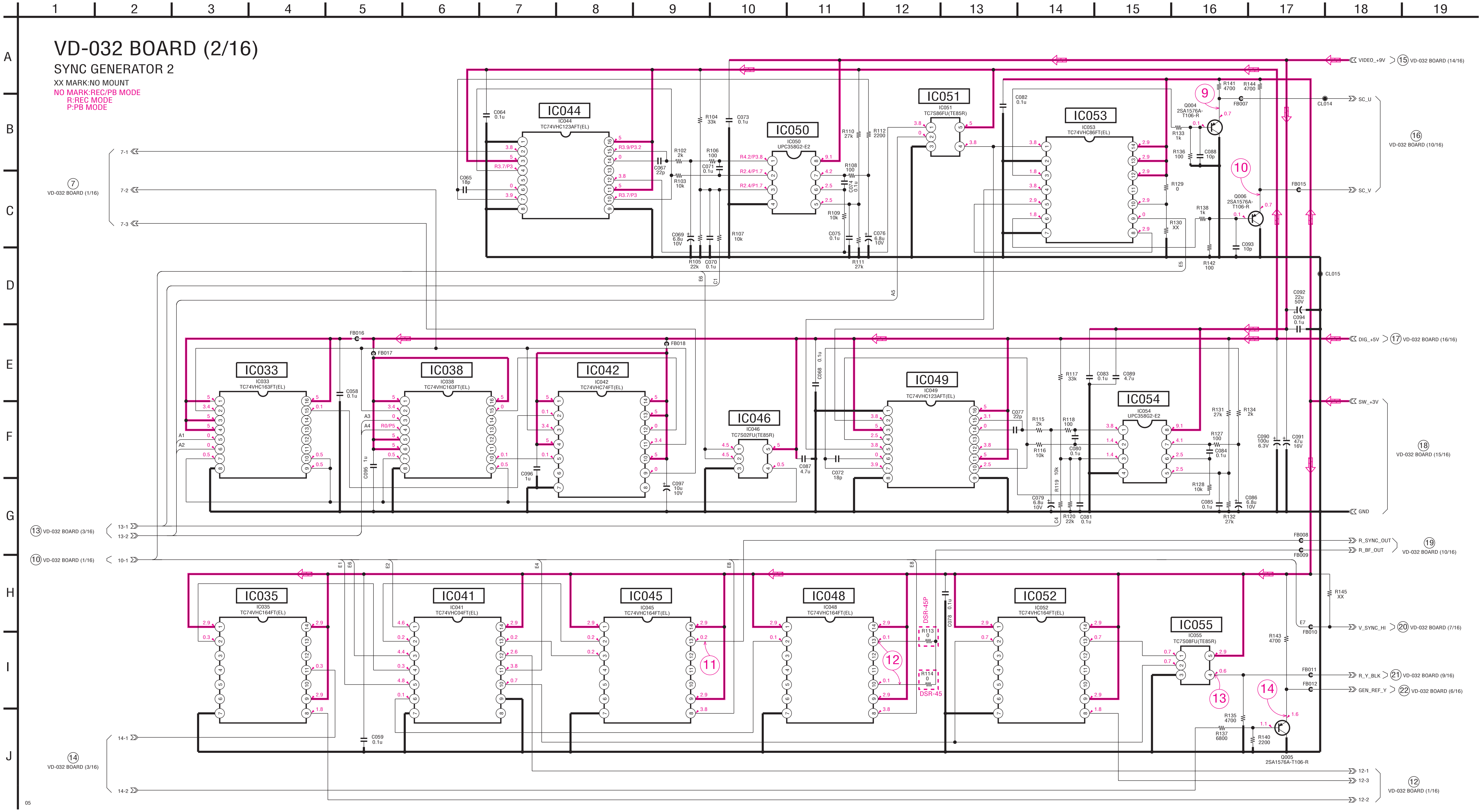
SIGNAL PATH

	VIDEO SIGNAL		AUDIO SIGNAL
	CHROMA	Y	
REC		➡	➡
PB	⇨	⇨	⇨

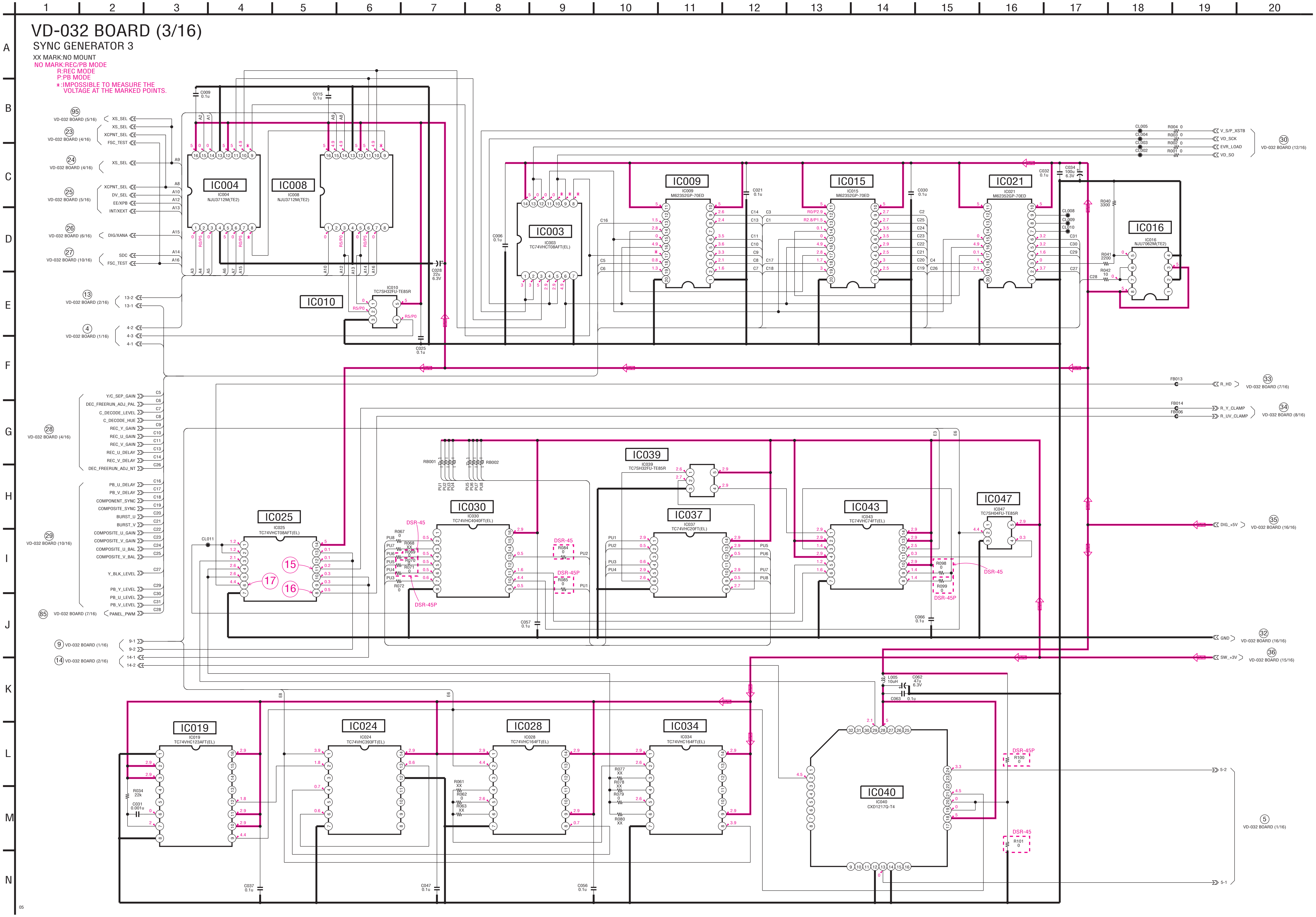
VD-032 (1/16) (SYNC GENERATOR 1) • See page 4-127 for VD-032 printed wiring board. • See page 4-168 for waveforms.


VD-032 BOARD (1/16)
SYNC GENERATOR 1
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
IC005 LM1881MX
IC006 TC74VHC00FT(EL)
IC011 TC7S02FU(TE85R)
IC013 CXD1216M-T6
IC020 TC74HC4053AFT(EL)
IC026 UPC358G2-E2
IC031 TC74VHCT244AFT(EL)
IC001 TC74VHC00FT(EL)
IC014 TC74VHC02FT(EL)
IC022 TC74VHC123AFT(EL)
IC029 UPC358G2-E2
IC036 CXD1217Q-T4
IC017 TC7S02FU(TE85R)
IC002 TC74VHC123AFT(EL)
IC007 TC74VHC00FT(EL)
IC012 TC74VHC00FT(EL)
IC018 TC74VHC164FT(EL)
IC023 TC74VHC393FT(EL)
IC027 TC74VHC164FT(EL)
IC032 TC74VHC00FT(EL)
Q001 XP6501-(TX).SO
Q002 2SC4081T106R
Q003 2SK880GR-TE85L
D001 MA112-TX
✱ X001 14.31818MHz:DSR-45 14.1875MHz:DSR-45P
✱ X002 14.31818MHz:DSR-45 17.734475MHz:DSR-45P
GEN_LOCK_Y
GEN_LOCK_C
GND
VIDEO_-5V
INT/EXT_DET
SC_DET
VIDEO_+9V
DIG_+5V
SW_+3V
① VD-032 BOARD (5/16)
② VD-032 BOARD (15/16)
③ VD-032 BOARD (7/16)
④ VD-032 BOARD (3/16)
⑤ VD-032 BOARD (3/16)
⑥ VD-032 BOARD (14/16)
⑦ VD-032 BOARD (2/16)
⑧ VD-032 BOARD (16/16)
⑨ VD-032 BOARD (3/16)
⑩ VD-032 BOARD (2/16)
⑪ VD-032 BOARD (15/16)
⑫ VD-032 BOARD (2/16)
DSR-45
DSR-45P
05

VD-032 (2/16) (SYNC GENERATOR 2) • See page 4-127 for VD-032 printed wiring board. • See page 4-168, 169 for waveforms.


VD-032 BOARD (2/16)
SYNC GENERATOR 2
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
IC044 TC74VHC123AFT(EL)
IC050 UPC358G2-E2
IC051 TC7S86FU(TE85R)
IC053 TC74VHC86FT(EL)
IC033 TC74VHC163FT(EL)
IC038 TC74VHC163FT(EL)
IC042 TC74VHC74FT(EL)
IC046 TC7S02FU(TE85R)
IC049 TC74VHC123AFT(EL)
IC054 UPC358G2-E2
IC035 TC74VHC164FT(EL)
IC041 TC74VHC04FT(EL)
IC045 TC74VHC164FT(EL)
IC048 TC74VHC164FT(EL)
IC052 TC74VHC164FT(EL)
IC055 TC7S08FU(TE85R)
Q004 2SA1576A-T106-R
Q006 2SA1576A-T106-R
Q005 2SA1576A-T106-R
VIDEO_+9V (15) VD-032 BOARD (14/16)
SC_U
SC_V
(16) VD-032 BOARD (10/16)
DIG_+5V (17) VD-032 BOARD (16/16)
SW_+3V
(18) VD-032 BOARD (15/16)
GND
R_SYNC_OUT
R_BF_OUT
(19) VD-032 BOARD (10/16)
V_SYNC_HI (20) VD-032 BOARD (7/16)
R_Y_BLK (21) VD-032 BOARD (9/16)
GEN_REF_Y (22) VD-032 BOARD (6/16)
12-1
12-3
12-2
(12) VD-032 BOARD (1/16)
7-1
7-2
7-3
(7) VD-032 BOARD (1/16)
13-1
13-2
(13) VD-032 BOARD (3/16)
10-1
(10) VD-032 BOARD (1/16)
14-1
14-2
(14) VD-032 BOARD (3/16)
DSR-45P
DSR-45
9
10
11
12
13
14
05

VD-032 (3/16) (SYNC GENERATOR 3) • See page 4-127 for VD-032 printed wiring board. • See page 4-169 for waveforms.


VD-032 BOARD (3/16)
SYNC GENERATOR 3
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
*:IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.
IC004 NJU3712M(TE2)
IC008 NJU3712M(TE2)
IC010 TC7SH32FU-TE85R
IC003 TC74VHCT08AFT(EL)
IC009 M62352GP-70ED
IC015 M62352GP-70ED
IC021 M62352GP-70ED
IC016 NJU7062M(TE2)
IC039 TC7SH32FU-TE85R
IC025 TC74VHCT08AFT(EL)
IC030 TC74VHC4040FT(EL)
IC037 TC74VHC20FT(EL)
IC043 TC74VHC74FT(EL)
IC047 TC7SH04FU-TE85R
IC019 TC74VHC123AFT(EL)
IC024 TC74VHC393FT(EL)
IC028 TC74VHC164FT(EL)
IC034 TC74VHC164FT(EL)
IC040 CXD1217Q-T4
VD-032 BOARD (5/16)
VD-032 BOARD (4/16)
VD-032 BOARD (6/16)
VD-032 BOARD (10/16)
VD-032 BOARD (2/16)
VD-032 BOARD (1/16)
VD-032 BOARD (12/16)
VD-032 BOARD (7/16)
VD-032 BOARD (8/16)
VD-032 BOARD (16/16)
VD-032 BOARD (15/16)
XS_SEL
XCPNT_SEL
FSC_TEST
DV_SEL
EE/XPB
INT/XEXT
DIG/XANA
SDC
V_S/P_XSTB
VD_SCK
EVR_LOAD
VD_SD
R_HD
R_Y_CLAMP
R_UV_CLAMP
DIG_+5V
GND
SW_+3V
Y/C_SEP_GAIN
DEC_FREERUN_ADJ_PAL
C_DECODE_LEVEL
C_DECODE_HUE
REC_Y_GAIN
REC_U_GAIN
REC_V_GAIN
REC_U_DELAY
REC_V_DELAY
DEC_FREERUN_ADJ_NT
PB_U_DELAY
PB_V_DELAY
COMPONENT_SYNC
COMPOSITE_SYNC
BURST_U
BURST_V
COMPOSITE_U_GAIN
COMPOSITE_V_GAIN
COMPOSITE_U_BAL
COMPOSITE_V_BAL
Y_BLEV_LEVEL
PB_Y_LEVEL
PB_U_LEVEL
PB_V_LEVEL
PANEL_PWM
DSR-45
DSR-45P

VD-032 (4/16) (VIDEO IN 1) • See page 4-127 for VD-032 printed wiring board. • See page 4-169, 170 for waveforms.

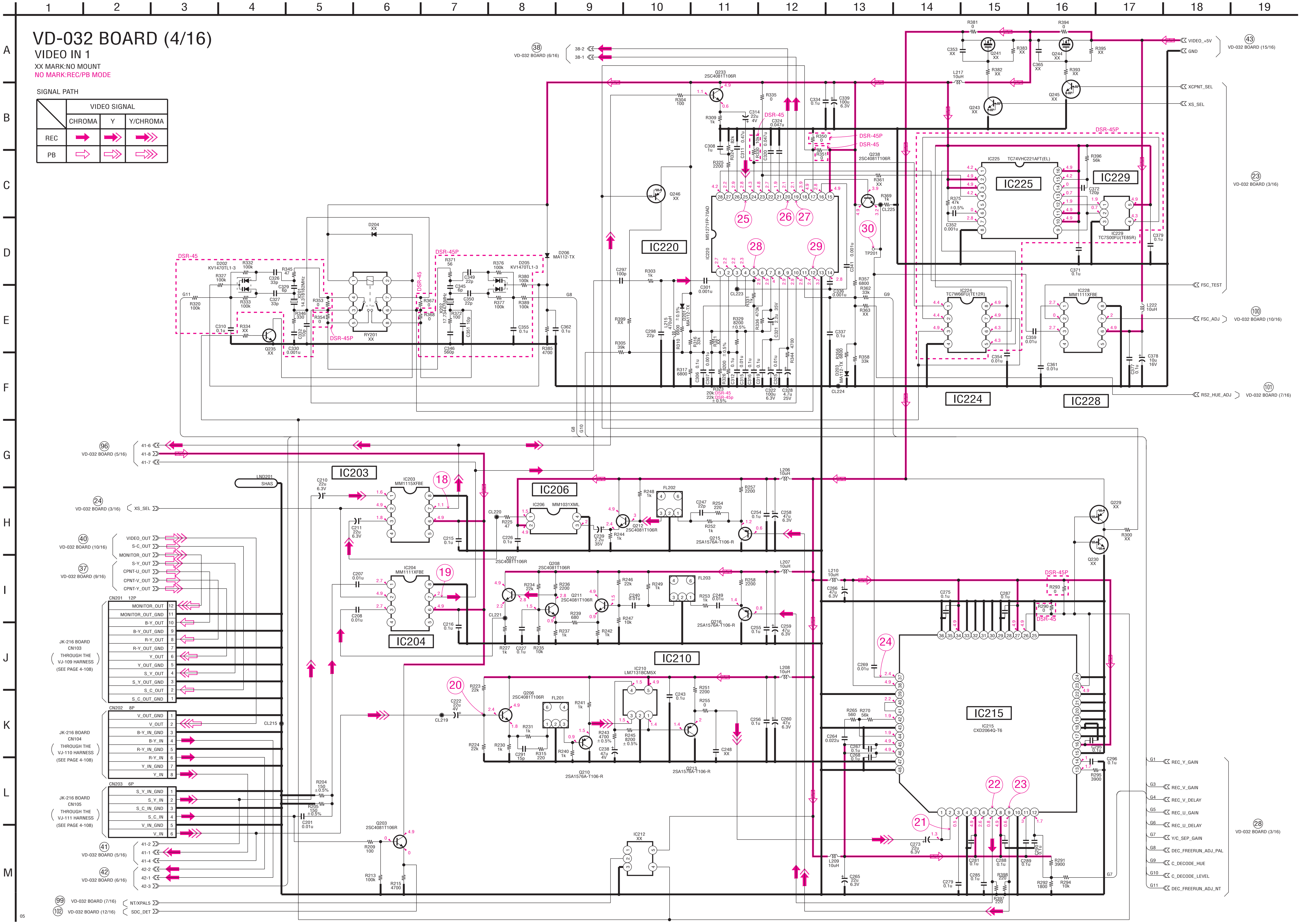
VD-032 BOARD (4/16)

VIDEO IN 1

XX MARK:NO MOUNT
NO MARK:REC/PB MODE

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡➡	➡➡➡
PB	⇨	⇨⇨	⇨⇨⇨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A
B
C
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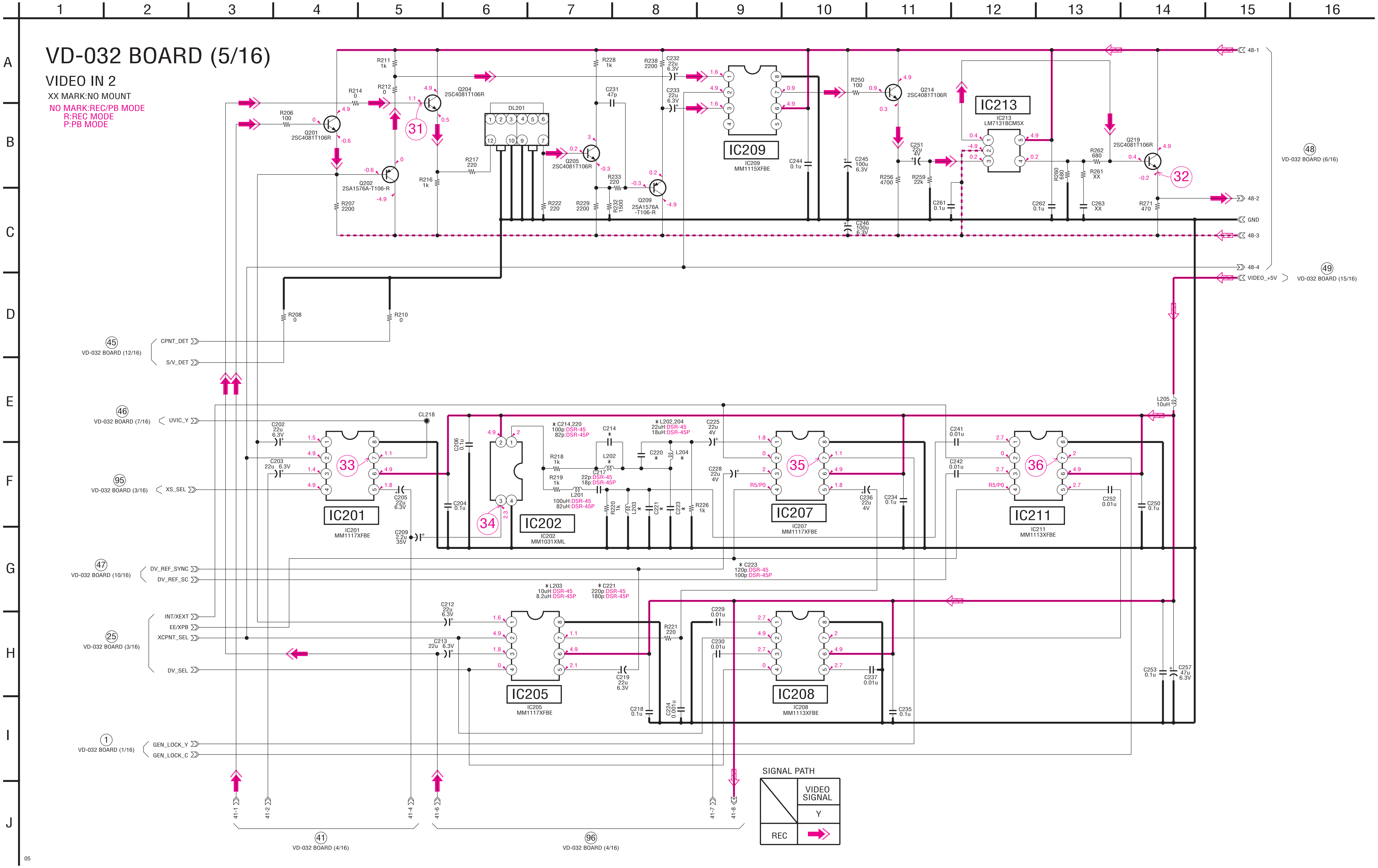
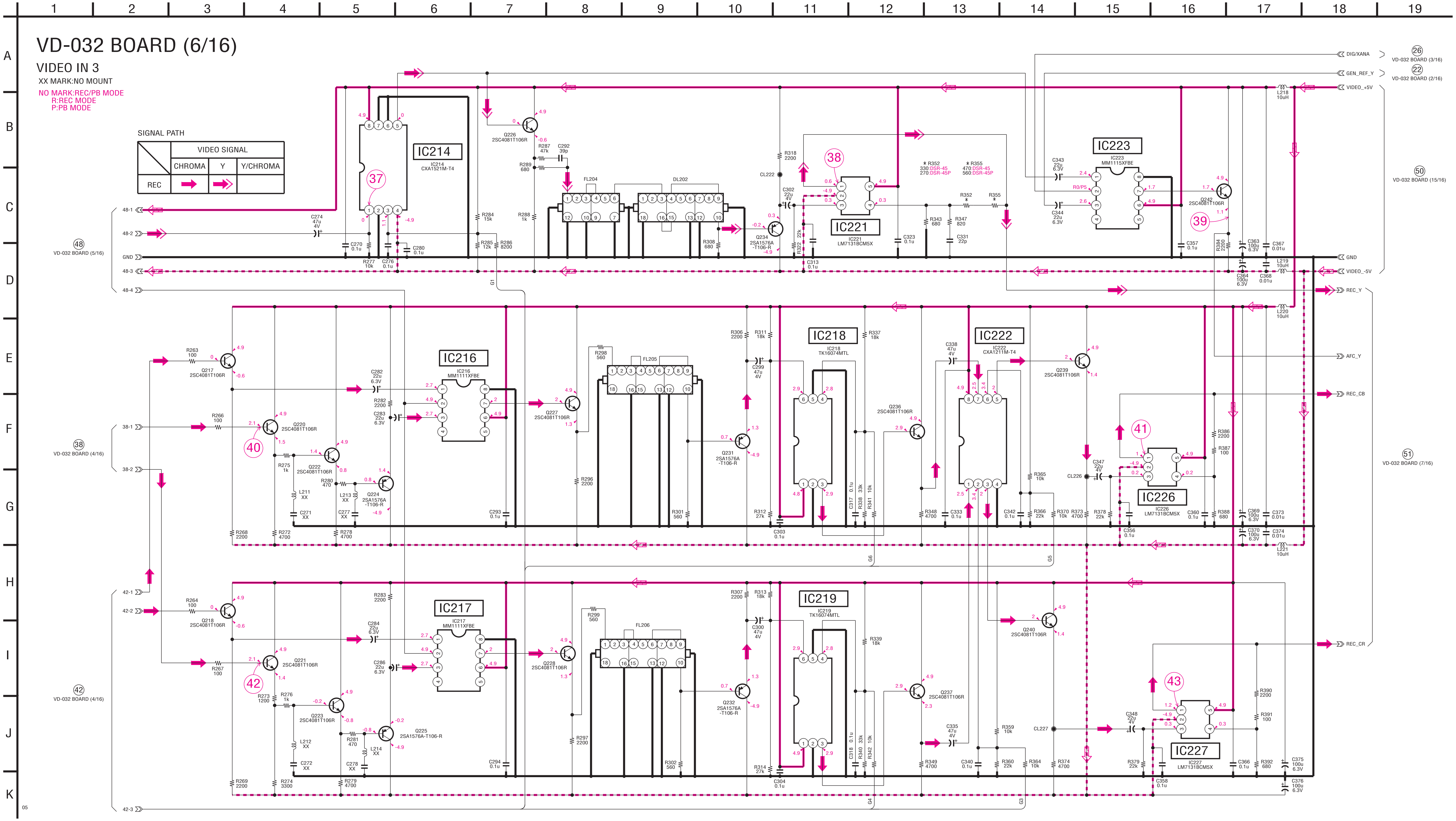
E
F
G
H
I
J
K
L
M
IC203
IC203 MM1115XFBE
IC204
IC204 MM1111XFBE
IC206
IC206 MM1031XML
IC210
IC210 LM7131BCM5X
IC212
IC215
IC215 CXD2064Q-T6
IC220
IC220 M51271FP-70AD
IC224
IC224 TC7W66FU(TE12R)
IC225
IC225 TC74VHC221AFT(EL)
IC228
IC228 MM1111XFBE
IC229
IC229 TC7S00FU(TE85R)
RY201
D202 KV1470TL1-3
D205 KV1470TL1-3
D206 MA112-TX
D204
Q233 2SC4081T106R
Q238 2SC4081T106R
Q207 2SC4081T106R
Q208 2SC4081T106R
Q211 2SC4081T106R
Q212 2SC4081T106R
Q206 2SC4081T106R
Q203 2SC4081T106R
Q215 2SA1576A-T106-R
Q216 2SA1576A-T106-R
Q210 2SA1576A-T106-R
Q213 2SA1576A-T106-R
FL201
FL202
FL203
DSR-45
DSR-45P
VD-032 BOARD (6/16)
VD-032 BOARD (15/16)
VIDEO_+5V
GND
XCPNT_SEL
XS_SEL
VD-032 BOARD (3/16)
FSC_TEST
FSC_ADJ
VD-032 BOARD (10/16)
RS2_HUE_ADJ
VD-032 BOARD (7/16)
VD-032 BOARD (5/16)
VIDEO_OUT
S-C_OUT
MONITOR_OUT
S-Y_OUT
CPNT-U_OUT
CPNT-V_OUT
CPNT-Y_OUT
VD-032 BOARD (9/16)
CN201 12P
CN202 8P
CN203 6P
JK-216 BOARD CN103 THROUGH THE VJ-109 HARNESS (SEE PAGE 4-108)
JK-216 BOARD CN104 THROUGH THE VJ-110 HARNESS (SEE PAGE 4-108)
JK-216 BOARD CN105 THROUGH THE VJ-111 HARNESS (SEE PAGE 4-108)
REC_Y_GAIN
REC_V_GAIN
REC_V_DELAY
REC_U_GAIN
REC_U_DELAY
Y/C_SEP_GAIN
DEC_FREERUN_ADJ_PAL
C_DECODE_HUE
C_DECODE_LEVEL
DEC_FREERUN_ADJ_NT
VD-032 BOARD (12/16)
NT/XPAL5
SDC_DET
LND201 SHAS

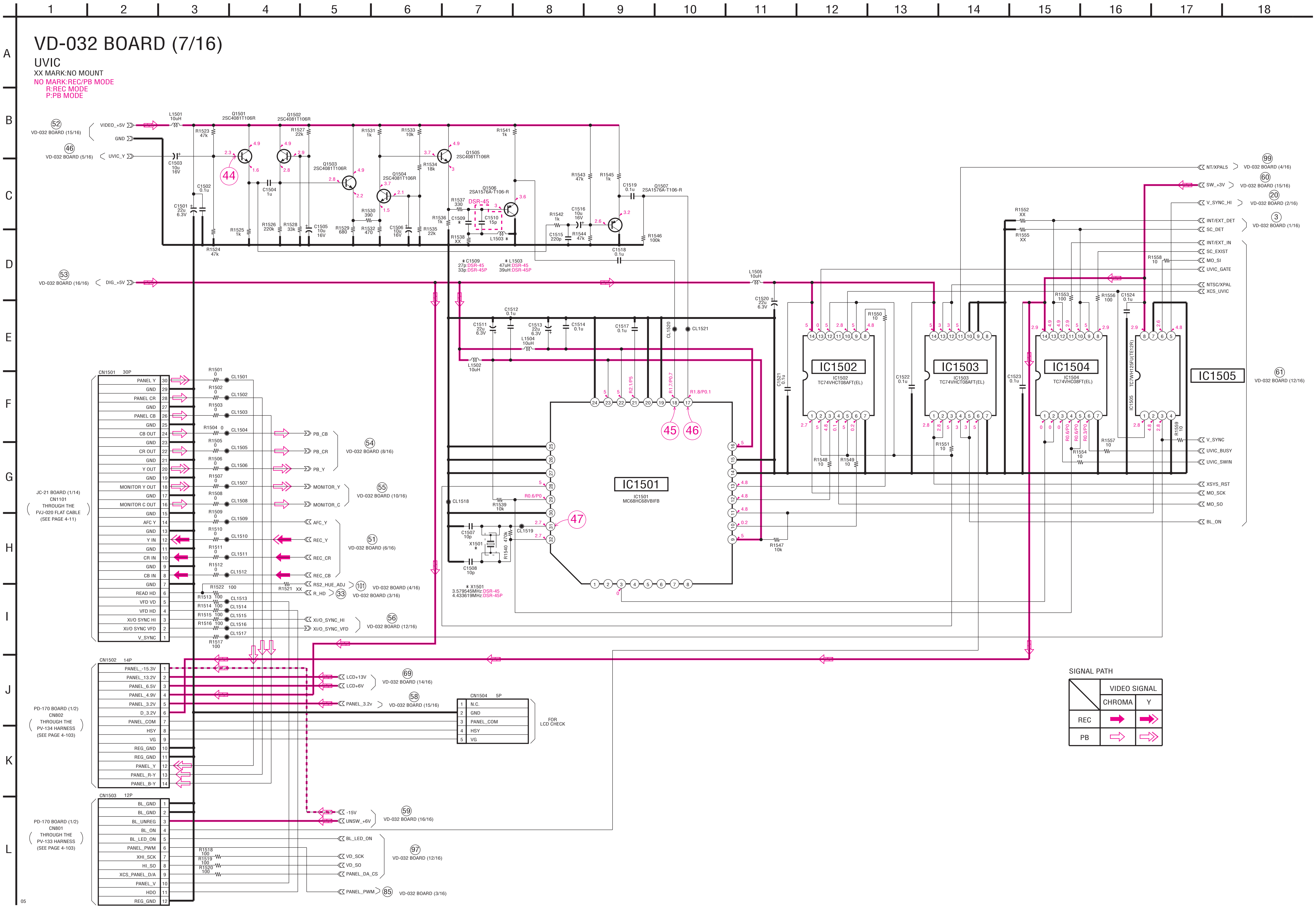
VD-032 (5/16) (VIDEO IN 2) • See page 4-127 for VD-032 printed wiring board. • See page 4-171 for waveforms.


VD-032 BOARD (5/16)
VIDEO IN 2
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
IC209
IC209 MM1115XFBE
IC213
IC213 LM7131BCM5X
IC201
IC201 MM1117XFBE
IC202
IC202 MM1031XML
IC207
IC207 MM1117XFBE
IC211
IC211 MM1113XFBE
IC205
IC205 MM1117XFBE
IC208
IC208 MM1113XFBE
DL201
Q201 2SC4081T106R
Q202 2SA1576A-T106-R
Q204 2SC4081T106R
Q205 2SC4081T106R
Q209 2SA1576A -T106-R
Q214 2SC4081T106R
Q219 2SC4081T106R
CL218
L205 10uH
48-1
48-2
GND
48-3
48-4
VIDEO_+5V
(48) VD-032 BOARD (6/16)
(49) VD-032 BOARD (15/16)
(45) VD-032 BOARD (12/16)
CPNT_DET
S/V_DET
(46) VD-032 BOARD (7/16)
UVIC_Y
(95) VD-032 BOARD (3/16)
XS_SEL
(47) VD-032 BOARD (10/16)
DV_REF_SYNC
DV_REF_SC
(25) VD-032 BOARD (3/16)
INT/XEXT
EE/XPB
XCPNT_SEL
DV_SEL
(1) VD-032 BOARD (1/16)
GEN_LOCK_Y
GEN_LOCK_C
41-1
41-2
41-4
41-6
41-7
41-8
(41) VD-032 BOARD (4/16)
(96) VD-032 BOARD (4/16)
∗C214,220 100p:DSR-45 82p:DSR-45P
∗L202,204 22uH:DSR-45 18uH:DSR-45P
∗C217 22p:DSR-45 18p:DSR-45P
L201 100uH:DSR-45 82uH:DSR-45P
∗C223 120p:DSR-45 100p:DSR-45P
∗L203 10uH:DSR-45 8.2uH:DSR-45P
∗C221 220p:DSR-45 180p:DSR-45P
SIGNAL PATH
VIDEO SIGNAL
Y
REC
05

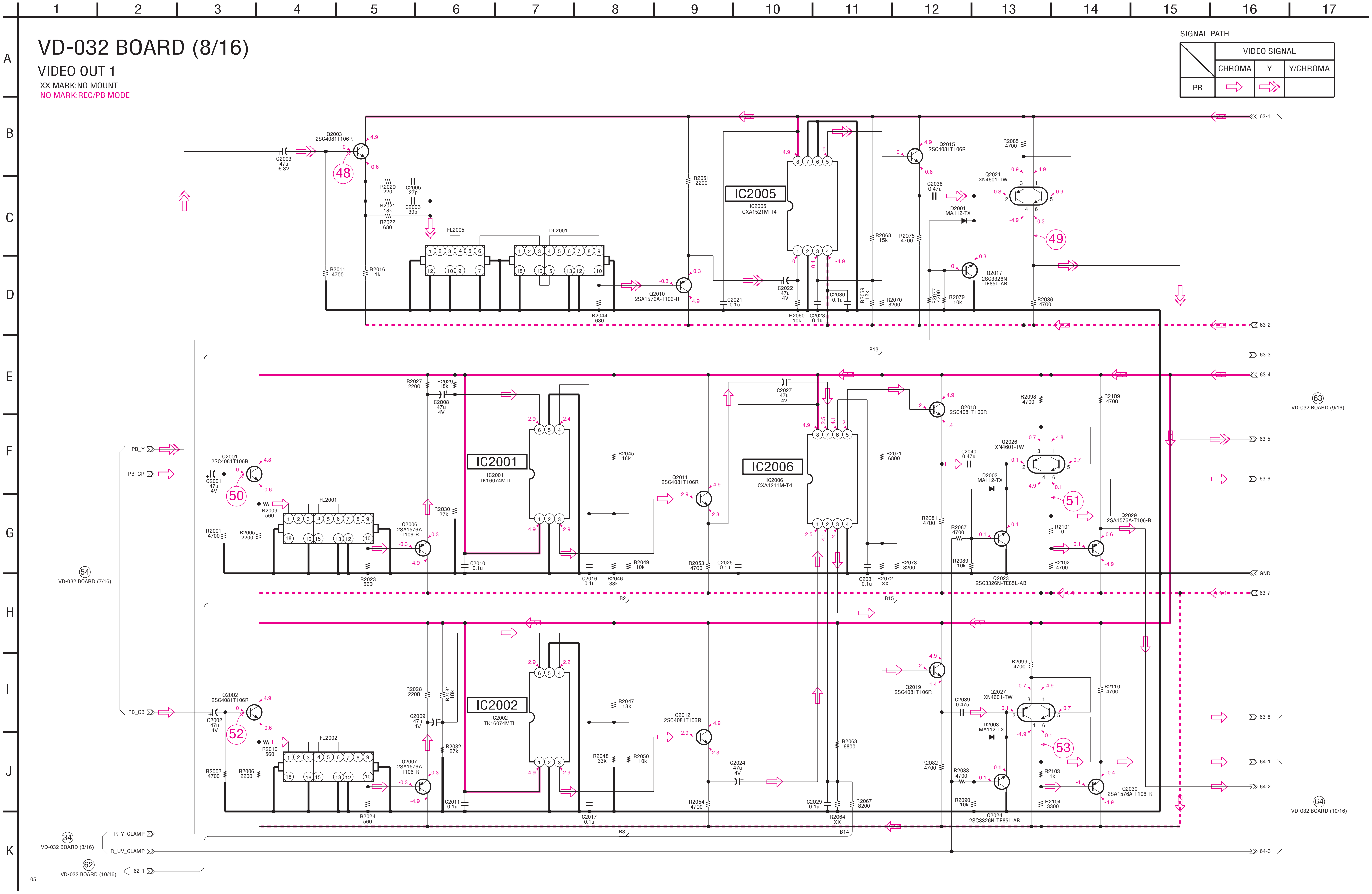
VD-032 (6/16) (VIDEO IN 3) • See page 4-127 for VD-032 printed wiring board. • See page 4-171, 172 for waveforms.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
A B C D E F G H I J K
VD-032 BOARD (6/16)
VIDEO IN 3
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
REC
IC214
IC214 CXA1521M-T4
IC216
IC216 MM1111XFBE
IC217
IC217 MM1111XFBE
IC218
IC218 TK16074MTL
IC219
IC219 TK16074MTL
IC221
IC221 LM7131BCM5X
IC222
IC222 CXA1211M-T4
IC223
IC223 MM1115XFBE
IC226
IC226 LM7131BCM5X
IC227
IC227 LM7131BCM5X
FL204
DL202
FL205
FL206
Q217 2SC4081T106R
Q218 2SC4081T106R
Q220 2SC4081T106R
Q221 2SC4081T106R
Q222 2SC4081T106R
Q223 2SC4081T106R
Q224 2SA1576A-T106-R
Q225 2SA1576A-T106-R
Q226 2SC4081T106R
Q227 2SC4081T106R
Q228 2SC4081T106R
Q231 2SA1576A-T106-R
Q232 2SA1576A-T106-R
Q234 2SA1576A-T106-R
Q236 2SC4081T106R
Q237 2SC4081T106R
Q239 2SC4081T106R
Q240 2SC4081T106R
Q242 2SC4081T106R
* R352 330:DSR-45 270:DSR-45P
* R355 470:DSR-45 560:DSR-45P
(37) (38) (39) (40) (41) (42) (43)
48-1
48-2
GND
48-3
48-4
(48) VD-032 BOARD (5/16)
38-1
38-2
(38) VD-032 BOARD (4/16)
42-1
42-2
42-3
(42) VD-032 BOARD (4/16)
DIG/XANA
(26) VD-032 BOARD (3/16)
GEN_REF_Y
(22) VD-032 BOARD (2/16)
VIDEO_+5V
(50) VD-032 BOARD (15/16)
GND
VIDEO_-5V
REC_Y
AFC_Y
REC_CB
(51) VD-032 BOARD (7/16)
REC_CR
CL222
CL226
CL227
L218 10uH
L219 10uH
L220 10uH
L221 10uH
G1 G4 G5 G6
05

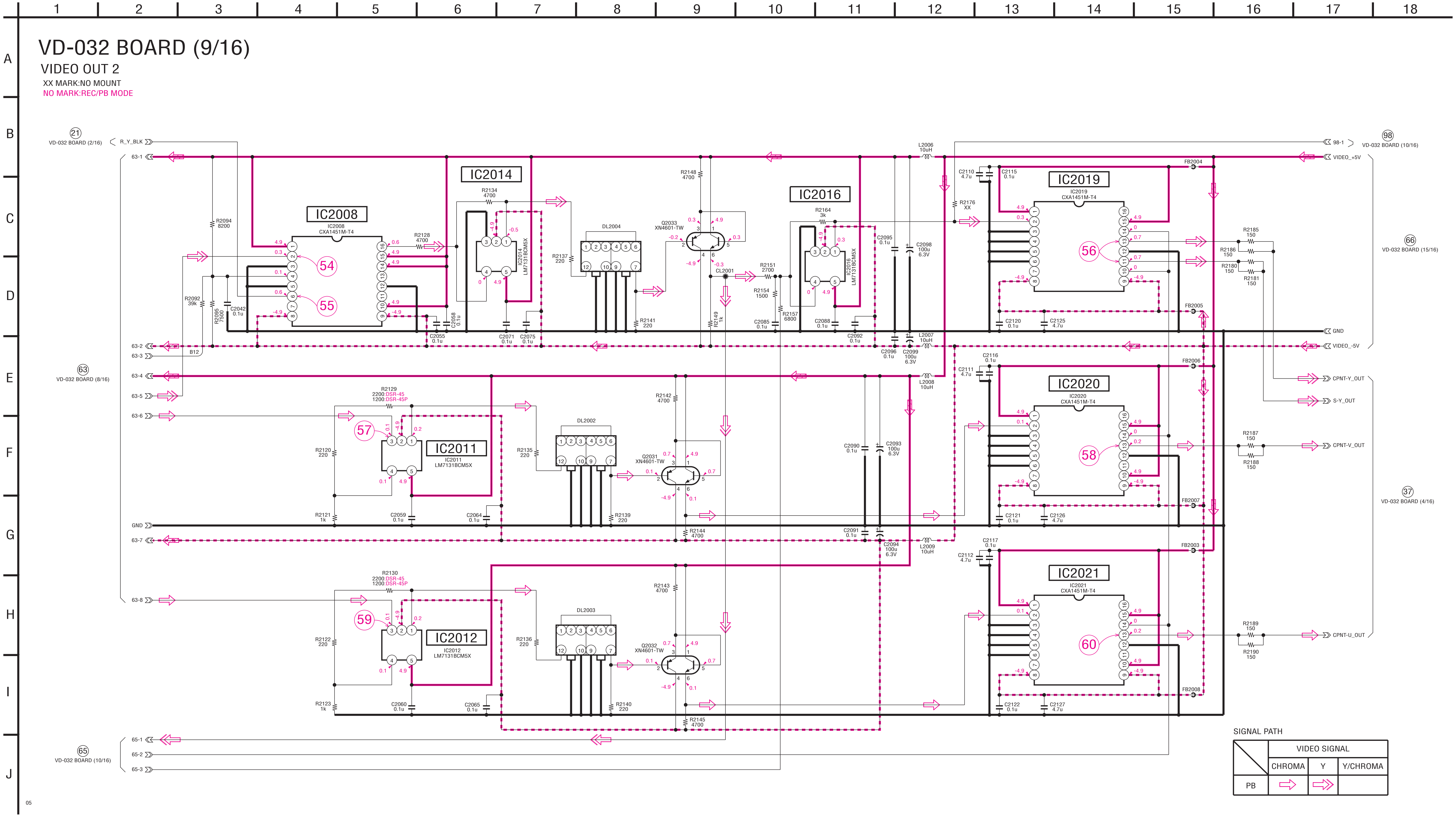
VD-032 (7/16) (UVIC) • See page 4-127 for VD-032 printed wiring board. • See page 4-172 for waveforms.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
A B C D E F G H I J K L
VD-032 BOARD (7/16)
UVIC
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
VD-032 BOARD (15/16) VIDEO_+5V
GND
VD-032 BOARD (5/16) UVIC_Y
VD-032 BOARD (16/16) DIG_+5V
Q1501 2SC4081T106R
Q1502 2SC4081T106R
Q1503 2SC4081T106R
Q1504 2SC4081T106R
Q1505 2SC4081T106R
Q1506 2SA1576A-T106-R
Q1507 2SA1576A-T106-R
DSR-45
IC1501
MC68HC68VBIFB
IC1502
TC74VHCT08AFT(EL)
IC1503
TC74VHCT08AFT(EL)
IC1504
TC74VHC08FT(EL)
IC1505
TC7WH125FU(TE12R)
X1501 3.579545MHz:DSR-45 4.433619MHz:DSR-45P
C1509 27p:DSR-45 33p:DSR-45P
L1503 47uH:DSR-45 39uH:DSR-45P
44 45 46 47
CN1501 30P
PANEL Y, GND, PANEL CR, GND, PANEL CB, GND, CB OUT, GND, CR OUT, GND, Y OUT, GND, MONITOR Y OUT, GND, MONITOR C OUT, GND, AFC Y, GND, Y IN, GND, CR IN, GND, CB IN, GND, READ HD, VFD VD, VFD HD, XI/O SYNC HI, XI/O SYNC VFD, V_SYNC
JC-21 BOARD (1/14) CN1101 THROUGH THE FVJ-020 FLAT CABLE (SEE PAGE 4-11)
PB_CB PB_CR PB_Y VD-032 BOARD (8/16)
MONITOR_Y MONITOR_C VD-032 BOARD (10/16)
AFC_Y REC_Y REC_CR REC_CB VD-032 BOARD (6/16)
RS2_HUE_ADJ VD-032 BOARD (4/16)
R_HD VD-032 BOARD (3/16)
XI/O_SYNC_HI XI/O_SYNC_VFD VD-032 BOARD (12/16)
CN1502 14P
PANEL_-15.3V, PANEL_13.2V, PANEL_6.5V, PANEL_4.9V, PANEL_3.2V, D_3.2V, PANEL_COM, HSY, VG, REG_GND, REG_GND, PANEL_Y, PANEL_R-Y, PANEL_B-Y
PD-170 BOARD (1/2) CN802 THROUGH THE PV-134 HARNESS (SEE PAGE 4-103)
LCD+13V LCD+6V VD-032 BOARD (14/16)
PANEL_3.2V VD-032 BOARD (15/16)
CN1504 5P N.C. GND PANEL_COM HSY VG
FOR LCD CHECK
CN1503 12P
BL_GND, BL_GND, BL_UNREG, BL_ON, BL_LED_ON, PANEL_PWM, XHI_SCK, HI_SO, XCS_PANEL_D/A, PANEL_V, HDDO, REG_GND
PD-170 BOARD (1/2) CN801 THROUGH THE PV-133 HARNESS (SEE PAGE 4-103)
-15V UNSW_+6V VD-032 BOARD (16/16)
BL_LED_ON VD_SCK VD_SO PANEL_DA_CS VD-032 BOARD (12/16)
PANEL_PWM VD-032 BOARD (3/16)
NT/XPALS VD-032 BOARD (4/16)
SW_+3V VD-032 BOARD (15/16)
V_SYNC_HI VD-032 BOARD (2/16)
INT/EXT_DET SC_DET VD-032 BOARD (1/16)
INT/EXT_IN SC_EXIST MO_SI UVIC_GATE NTSC/XPAL XCS_UVIC
VD-032 BOARD (12/16)
V_SYNC UVIC_BUSY UVIC_SWIN
XSYS_RST MO_SCK MO_SO BL_ON
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
REC
PB
05

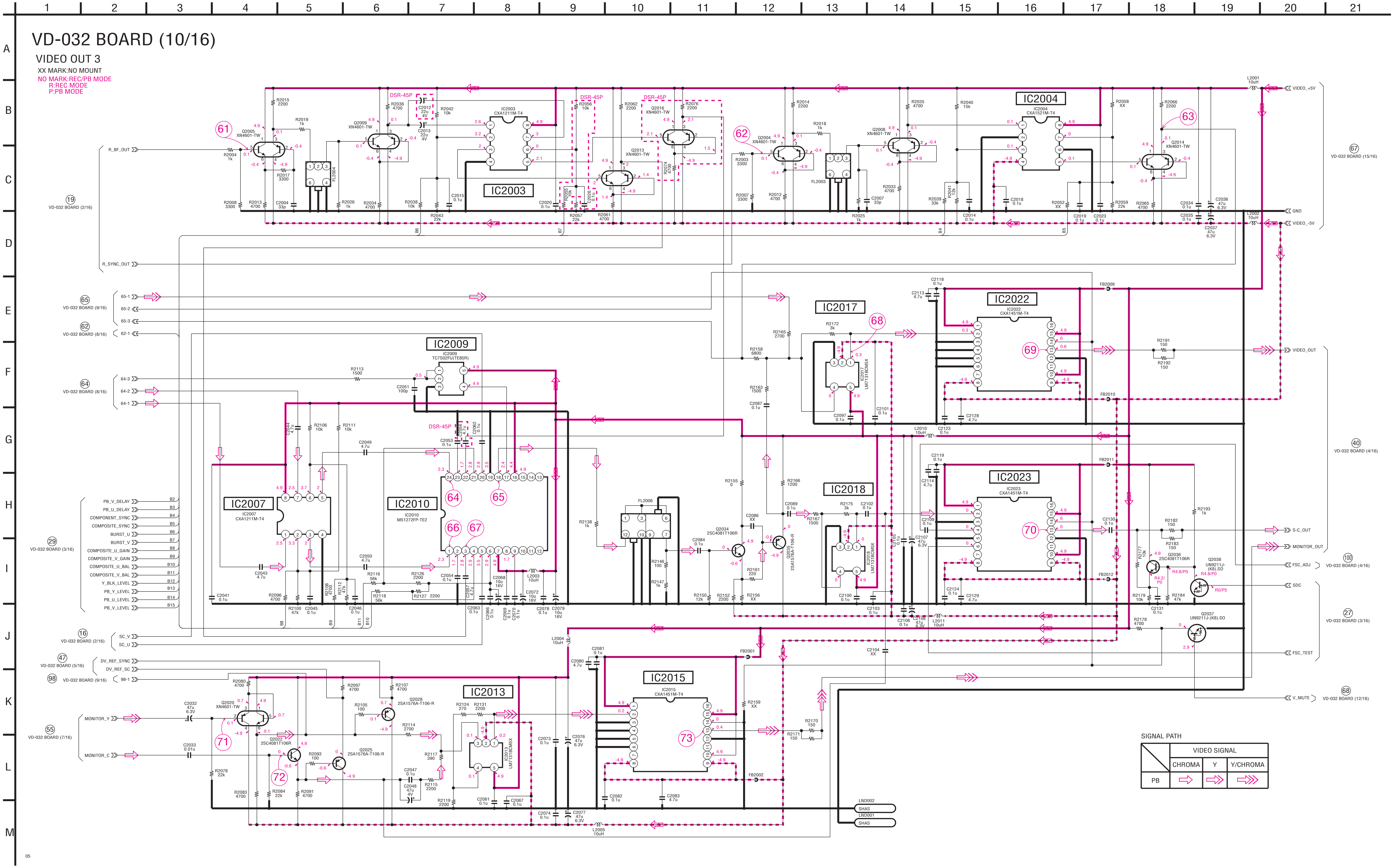
VD-032 (8/16) (VIDEO OUT 1) • See page 4-127 for VD-032 printed wiring board. • See page 4-172, 173 for waveforms.


VD-032 BOARD (8/16)
VIDEO OUT 1
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
PB
IC2005
CXA1521M-T4
IC2001
TK16074MTL
IC2006
CXA1211M-T4
IC2002
TK16074MTL
FL2005
DL2001
FL2001
FL2002
Q2003 2SC4081T106R
Q2010 2SA1576A-T106-R
Q2015 2SC4081T106R
Q2021 XN4601-TW
D2001 MA112-TX
Q2017 2SC3326N-TE85L-AB
Q2001 2SC4081T106R
Q2006 2SA1576A-T106-R
Q2011 2SC4081T106R
Q2018 2SC4081T106R
Q2026 XN4601-TW
D2002 MA112-TX
Q2029 2SA1576A-T106-R
Q2023 2SC3326N-TE85L-AB
Q2002 2SC4081T106R
Q2007 2SA1576A-T106-R
Q2012 2SC4081T106R
Q2019 2SC4081T106R
Q2027 XN4601-TW
D2003 MA112-TX
Q2030 2SA1576A-T106-R
Q2024 2SC3326N-TE85L-AB
PB_Y
PB_CR
PB_CB
R_Y_CLAMP
R_UV_CLAMP
62-1
63-1
63-2
63-3
63-4
63-5
63-6
GND
63-7
63-8
64-1
64-2
64-3
(63) VD-032 BOARD (9/16)
(64) VD-032 BOARD (10/16)
(54) VD-032 BOARD (7/16)
(34) VD-032 BOARD (3/16)
(62) VD-032 BOARD (10/16)
(48)
(49)
(50)
(51)
(52)
(53)
B13
B2
B15
B3
B14
05

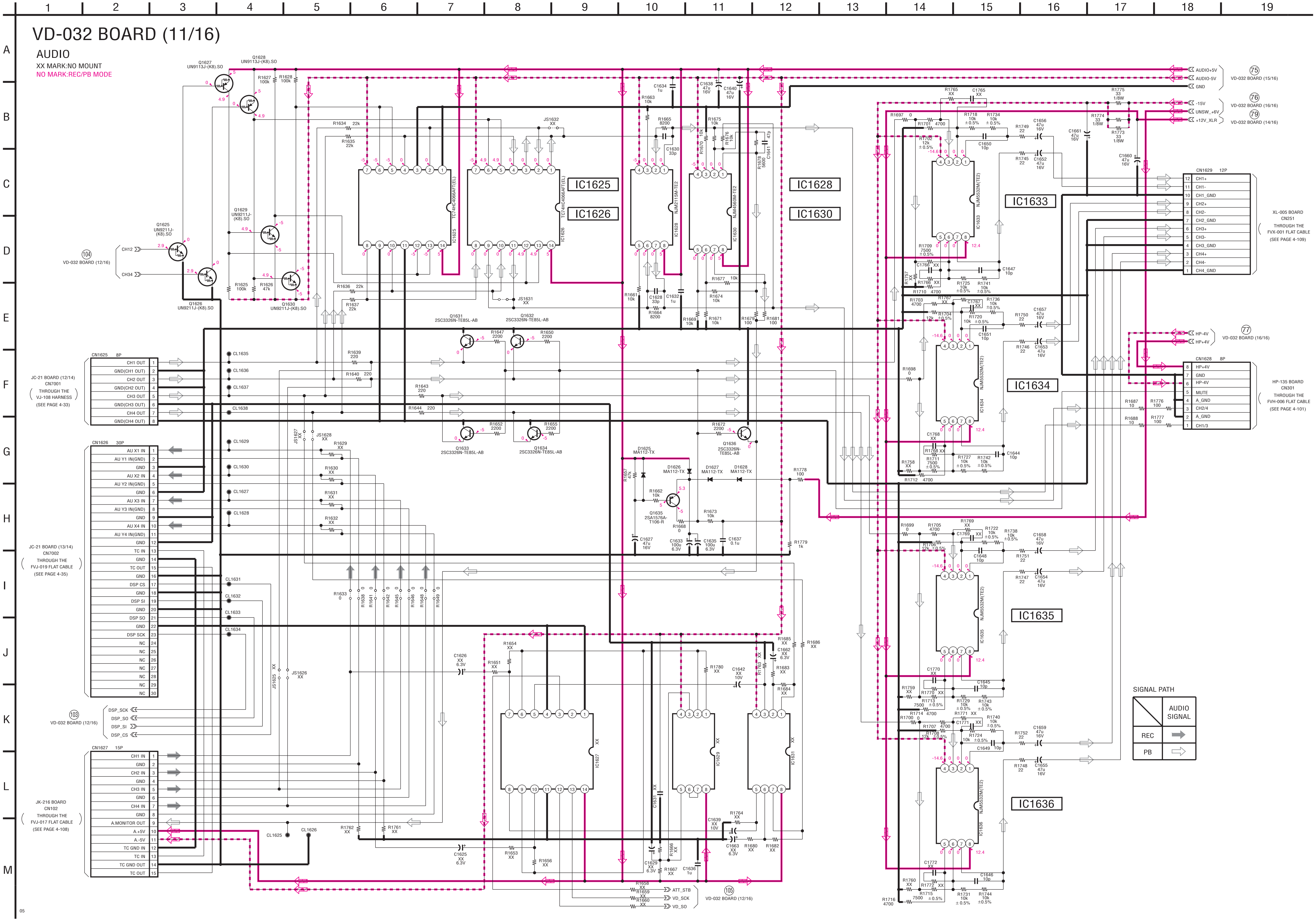
VD-032 (9/16) (VIDEO OUT 2) • See page 4-127 for VD-032 printed wiring board. • See page 4-173, 174 for waveforms.


VD-032 BOARD (9/16)
VIDEO OUT 2
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
IC2008 CXA1451M-T4
IC2014 LM7131BCM5X
IC2016 LM7131BCM5X
IC2019 CXA1451M-T4
IC2020 CXA1451M-T4
IC2021 CXA1451M-T4
IC2011 LM7131BCM5X
IC2012 LM7131BCM5X
DL2004
DL2002
DL2003
Q2033 XN4601-TW
Q2031 XN4601-TW
Q2032 XN4601-TW
CL2001
(21) VD-032 BOARD (2/16)
R_Y_BLK
63-1
63-2
63-3
(63) VD-032 BOARD (8/16)
63-4
63-5
63-6
GND
63-7
63-8
(65) VD-032 BOARD (10/16)
65-1
65-2
65-3
(98) VD-032 BOARD (10/16)
98-1
VIDEO_+5V
(66) VD-032 BOARD (15/16)
GND
VIDEO_-5V
CPNT-Y_OUT
S-Y_OUT
CPNT-V_OUT
(37) VD-032 BOARD (4/16)
CPNT-U_OUT
L2006 10uH
L2007 10uH
L2008 10uH
L2009 10uH
FB2003
FB2004
FB2005
FB2006
FB2007
FB2008
54
55
56
57
58
59
60
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
PB
05

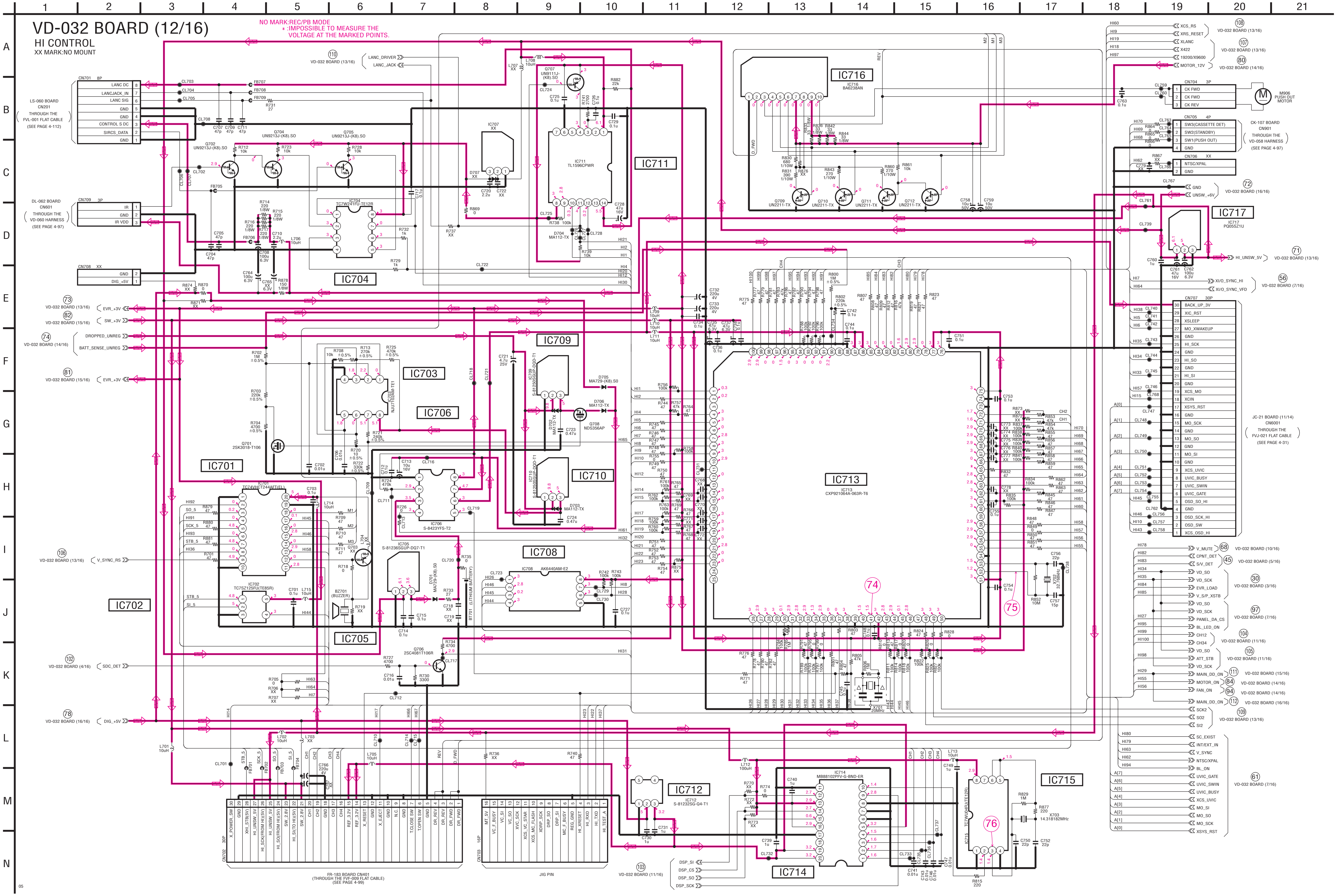
VD-032 (10/16) (VIDEO OUT 3) • See page 4-127 for VD-032 printed wiring board. • See page 4-174, 175 for waveforms.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
A
B
C
D
E
F
G
H
I
J
K
L
M
VD-032 BOARD (10/16)
VIDEO OUT 3
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
IC2003
IC2003 CXA1211M-T4
IC2004
IC2004 CXA1521M-T4
IC2007
IC2007 CXA1211M-T4
IC2009
IC2009 TC7S02FU(TE85R)
IC2010
IC2010 M51272FP-TE2
IC2013
IC2013 LM7131BCM5X
IC2015
IC2015 CXA1451M-T4
IC2017
IC2017 LM7131BCM5X
IC2018
IC2018 LM7131BCM5X
IC2022
IC2022 CXA1451M-T4
IC2023
IC2023 CXA1451M-T4
Q2005 XN4601-TW
Q2009 XN4601-TW
Q2013 XN4601-TW
Q2016 XN4601-TW
Q2004 XN4601-TW
Q2008 XN4601-TW
Q2014 XN4601-TW
Q2020 XN4601-TW
Q2022 2SC4081T106R
Q2025 2SA1576A-T106-R
Q2028 2SA1576A-T106-R
Q2034 2SC4081T106R
Q2035 2SA1576A-T106-R
Q2036 2SC4081T106R
Q2037 UN9211J-(K8).SO
Q2038 UN9211J-(K8).SO
DSR-45P
FL2004
FL2003
FL2006
(61)
(62)
(63)
(64)
(65)
(66)
(67)
(68)
(69)
(70)
(71)
(72)
(73)
R_BF_OUT
R_SYNC_OUT
(19) VD-032 BOARD (2/16)
(65) VD-032 BOARD (9/16)
65-1
65-2
65-3
(62) VD-032 BOARD (8/16)
62-1
(64) VD-032 BOARD (8/16)
64-3
64-2
64-1
(29) VD-032 BOARD (3/16)
PB_V_DELAY
PB_U_DELAY
COMPONENT_SYNC
COMPOSITE_SYNC
BURST_U
BURST_V
COMPOSITE_U_GAIN
COMPOSITE_V_GAIN
COMPOSITE_U_BAL
COMPOSITE_V_BAL
Y_BLK_LEVEL
PB_Y_LEVEL
PB_U_LEVEL
PB_V_LEVEL
(16) VD-032 BOARD (2/16)
SC_V
SC_U
(47) VD-032 BOARD (5/16)
DV_REF_SYNC
DV_REF_SC
(98) VD-032 BOARD (9/16)
98-1
(55) VD-032 BOARD (7/16)
MONITOR_Y
MONITOR_C
VIDEO_+5V
GND
VIDEO_-5V
(67) VD-032 BOARD (15/16)
VIDEO_OUT
(40) VD-032 BOARD (4/16)
S-C_OUT
MONITOR_OUT
FSC_ADJ
(100) VD-032 BOARD (4/16)
SDC
(27) VD-032 BOARD (3/16)
FSC_TEST
V_MUTE
(68) VD-032 BOARD (12/16)
LND002
SHAS
LND001
SHAS
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
PB
05

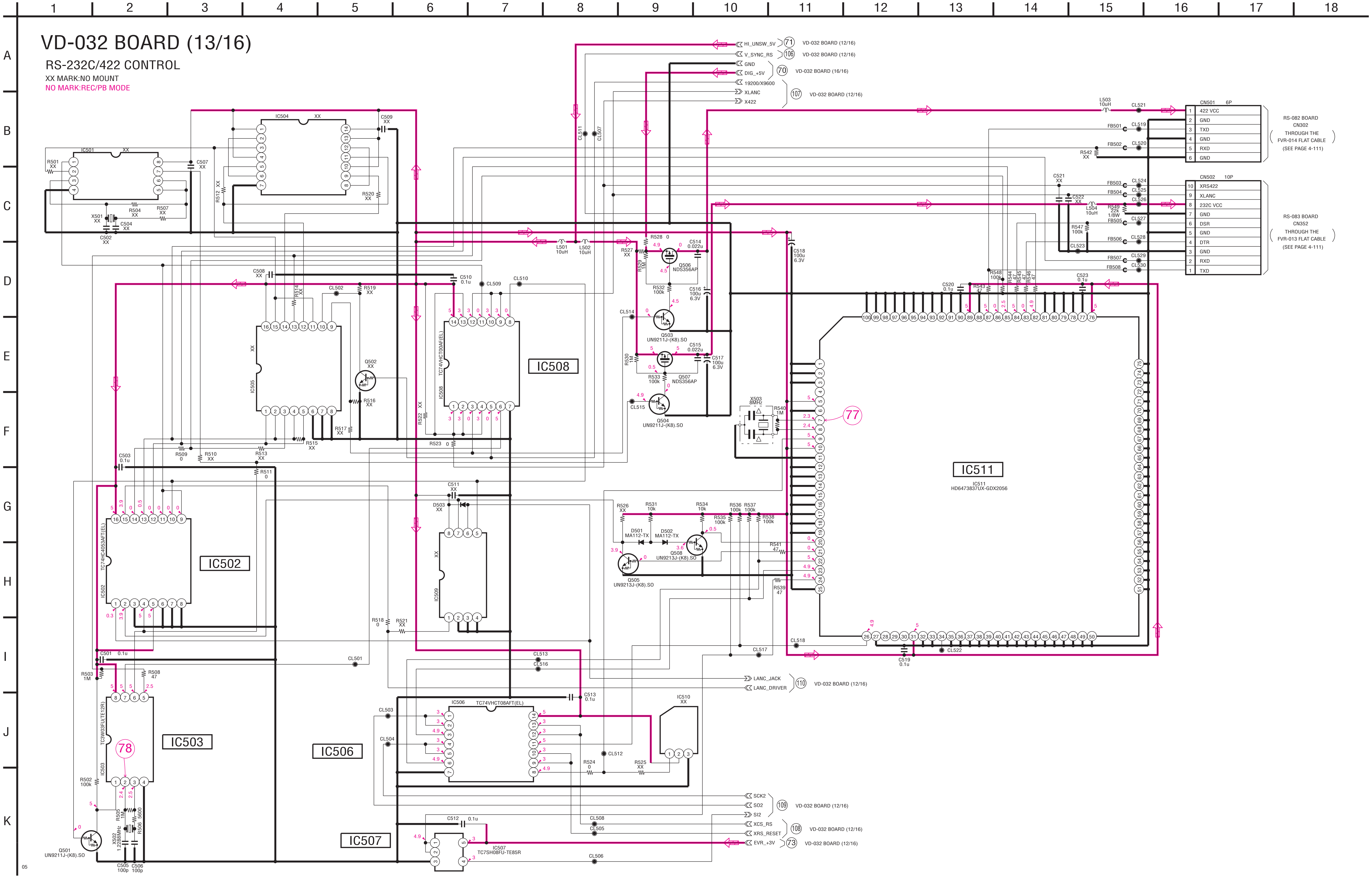
VD-032 (11/16) (AUDIO) • See page 4-127 for VD-032 printed wiring board.


VD-032 BOARD (11/16)
AUDIO
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
IC1625
IC1626
IC1628
IC1630
IC1633
IC1634
IC1635
IC1636
IC1627
IC1629
IC1631
TC74HC4066AFT(EL)
NJM2115M-TE2
NJM4560M-TE2
NJM5532M(TE2)
Q1625 UN9211J-(K8).SO
Q1626 UN9211J-(K8).SO
Q1627 UN9113J-(K8).SO
Q1628 UN9113J-(K8).SO
Q1629 UN9211J-(K8).SO
Q1630 UN9211J-(K8).SO
Q1631 2SC3326N-TE85L-AB
Q1632 2SC3326N-TE85L-AB
Q1633 2SC3326N-TE85L-AB
Q1634 2SC3326N-TE85L-AB
Q1635 2SA1576A-T106-R
Q1636 2SC3326N-TE85L-AB
D1625 MA112-TX
D1626 MA112-TX
D1627 MA112-TX
D1628 MA112-TX
CN1625 8P
CH1 OUT
GND(CH1 OUT)
CH2 OUT
GND(CH2 OUT)
CH3 OUT
GND(CH3 OUT)
CH4 OUT
GND(CH4 OUT)
JC-21 BOARD (12/14) CN7001 THROUGH THE VJ-108 HARNESS (SEE PAGE 4-33)
CN1626 30P
AU X1 IN
AU Y1 IN(GND)
GND
AU X2 IN
AU Y2 IN(GND)
GND
AU X3 IN
AU Y3 IN(GND)
GND
AU X4 IN
AU Y4 IN(GND)
GND
TC IN
GND
TC OUT
GND
DSP CS
GND
DSP SI
GND
DSP SO
GND
DSP SCK
NC
NC
NC
NC
NC
NC
NC
JC-21 BOARD (13/14) CN7002 THROUGH THE FVJ-019 FLAT CABLE (SEE PAGE 4-35)
(103) VD-032 BOARD (12/16)
DSP_SCK
DSP_SO
DSP_SI
DSP_CS
CN1627 15P
CH1 IN
GND
CH2 IN
GND
CH3 IN
GND
CH4 IN
GND
A.MONITOR OUT
A.+5V
A.-5V
TC GND IN
TC IN
TC GND OUT
TC OUT
JK-216 BOARD CN102 THROUGH THE FVJ-017 FLAT CABLE (SEE PAGE 4-108)
(104) VD-032 BOARD (12/16)
CH12
CH34
AUDIO+5V
AUDIO-5V
GND
(75) VD-032 BOARD (15/16)
-15V
UNSW_+6V
+12V_XLR
(76) VD-032 BOARD (16/16)
(79) VD-032 BOARD (14/16)
CN1629 12P
CH1+
CH1-
CH1_GND
CH2+
CH2-
CH2_GND
CH3+
CH3-
CH3_GND
CH4+
CH4-
CH4_GND
XL-005 BOARD CN251 THROUGH THE FVX-001 FLAT CABLE (SEE PAGE 4-109)
HP-4V
HP+4V
(77) VD-032 BOARD (16/16)
CN1628 8P
HP+4V
GND
HP-4V
MUTE
A_GND
CH2/4
A_GND
CH1/3
HP-135 BOARD CN301 THROUGH THE FVH-006 FLAT CABLE (SEE PAGE 4-101)
ATT_STB
VD_SCK
VD_SO
(105) VD-032 BOARD (12/16)
SIGNAL PATH
AUDIO SIGNAL
REC
PB
05

VD-032 (12/16) (HI CONTROL) • See page 4-127 for VD-032 printed wiring board. • See page 4-175 for waveforms.


VD-032 BOARD (12/16)
HI CONTROL
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
* :IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
A B C D E F G H I J K L M N
IC701
IC702
IC703
IC704
IC705
IC706
IC708
IC709
IC710
IC711
IC712
IC713
IC714
IC715
IC716
IC717
IC701 TC7WH2T1244AFT(EL)
IC702 TC7SZ125FU(TE85R)
IC703 NJU7101RB1(TE1)
IC704 TC7W241FU-TE12R
IC705 S-81236SGUP-DQ7-T1
IC706 S-8423YFS-T2
IC708 AK6440AM-E2
IC709 S-81235SGUP-DQ5-T1
IC710 S-81235SGUP-DQ5-T1
IC711 TL1596CPWR
IC712 S-81232SG-Q4-T1
IC713 CXP921064A-063R-T6
IC714 M888102PFV-G-BND-ER
IC715 TC7WU04FU(TE12R)
IC716 BA6238AN
IC717 PQ05SZ1U
CN701 8P
LS-060 BOARD CN201 THROUGH THE FVL-001 FLAT CABLE (SEE PAGE 4-112)
CN709 3P
DL-062 BOARD CN601 THROUGH THE VD-060 HARNESS (SEE PAGE 4-97)
CN708 XX
CN702 30P
FR-183 BOARD CN401 (THROUGH THE FVF-009 FLAT CABLE) (SEE PAGE 4-99)
CN703 16P
JIG PIN
CN704 3P
M906 PUSH OUT MOTOR
CN705 4P
CK-107 BOARD CN901 THROUGH THE VD-058 HARNESS (SEE PAGE 4-97)
CN706 XX
CN707 30P
JC-21 BOARD (11/14) CN6001 THROUGH THE FVJ-021 FLAT CABLE (SEE PAGE 4-31)
VD-032 BOARD (13/16)
VD-032 BOARD (14/16)
VD-032 BOARD (15/16)
VD-032 BOARD (16/16)
VD-032 BOARD (4/16)
VD-032 BOARD (10/16)
VD-032 BOARD (5/16)
VD-032 BOARD (3/16)
VD-032 BOARD (7/16)
VD-032 BOARD (11/16)
X701 20MHz
X703 14.318182MHz
X702 32.768kHz
BZ701 (BUZZER)
BT701 (LITHIUM BATTERY)
74
75
76
05

VD-032 (13/16) (RS-232C/422 CONTROL) • See page 4-127 for VD-032 printed wiring board. • See page 4-175 for waveforms.


1
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3
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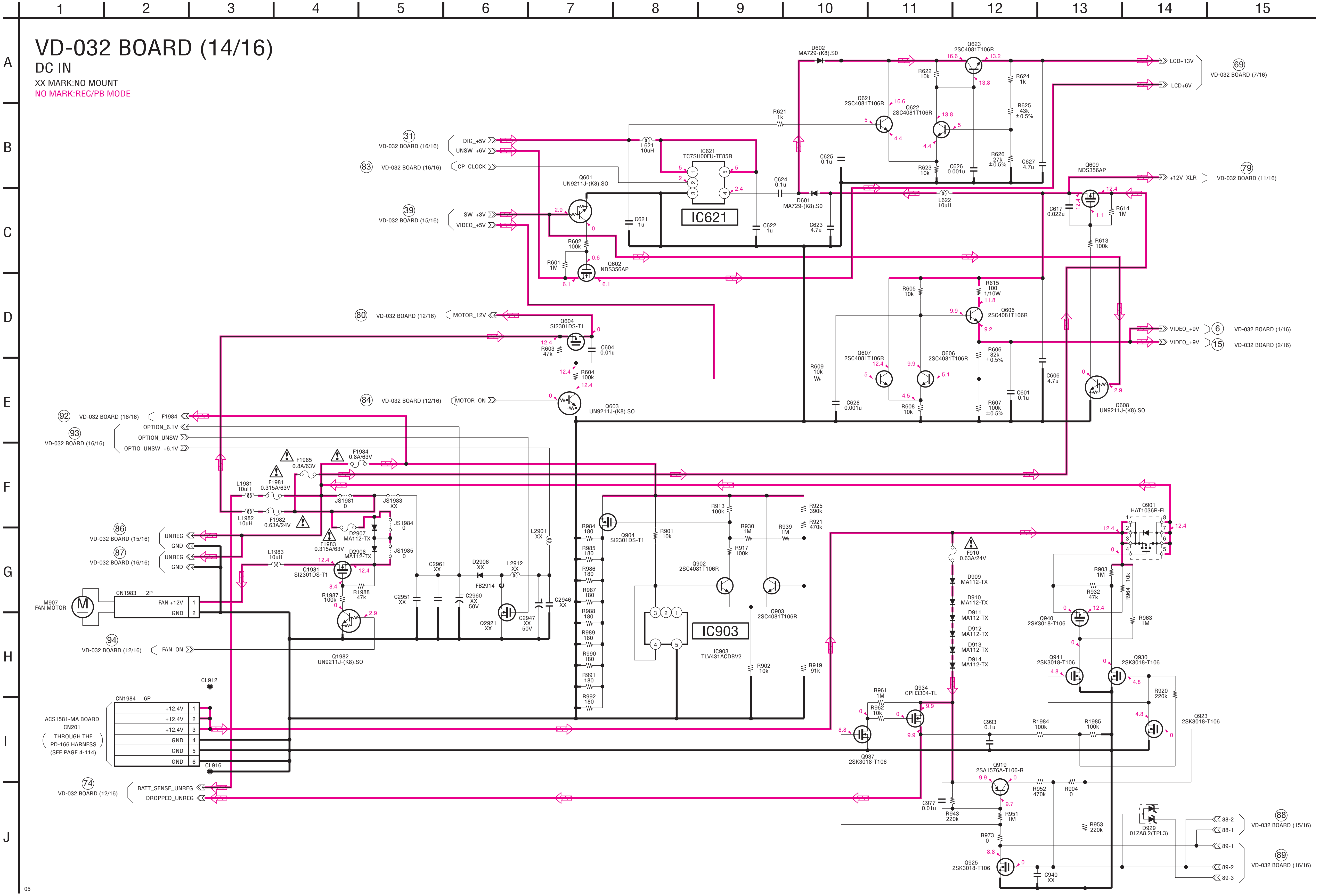
5
6
7
8
9
10
11
12
13
14
15
16
17
18
A
B
C
D
E
F
G
H
I
J
K
VD-032 BOARD (13/16)
RS-232C/422 CONTROL
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
HI_UNSW_5V
V_SYNC_RS
GND
DIG_+5V
19200/X9600
XLANC
X422
VD-032 BOARD (12/16)
VD-032 BOARD (16/16)
CN501 6P
422 VCC
GND
TXD
RXD
RS-082 BOARD CN302 THROUGH THE FVR-014 FLAT CABLE (SEE PAGE 4-111)
CN502 10P
XRS422
XLANC
232C VCC
DSR
DTR
RS-083 BOARD CN352 THROUGH THE FVR-013 FLAT CABLE (SEE PAGE 4-111)
IC501
IC502
TC74HC4053AFT(EL)
IC503
TC3W03FU(TE12R)
IC504
IC505
IC506
TC74VHCT08AFT(EL)
IC507
TC7SH08FU-TE85R
IC508
TC74VHCT00AF(EL)
IC509
IC510
IC511
HD6473837UX-GDX2056
Q501 UN9211J-(K8).SO
Q502
Q503 UN9211J-(K8).SO
Q504 UN9211J-(K8).SO
Q505 UN9213J-(K8).SO
Q506 NDS356AP
Q507 NDS356AP
Q508 UN9213J-(K8).SO
D501 MA112-TX
D502 MA112-TX
X502 1.2288MHz
X503 8MHz
77
78
LANC_JACK
LANC_DRIVER
SCK2
SO2
SI2
XCS_RS
XRS_RESET
EVR_+3V
05

VD-032 (14/16) (DC IN) • See page 4-127 for VD-032 printed wiring board.



VD-032 BOARD (14/16)

DC IN

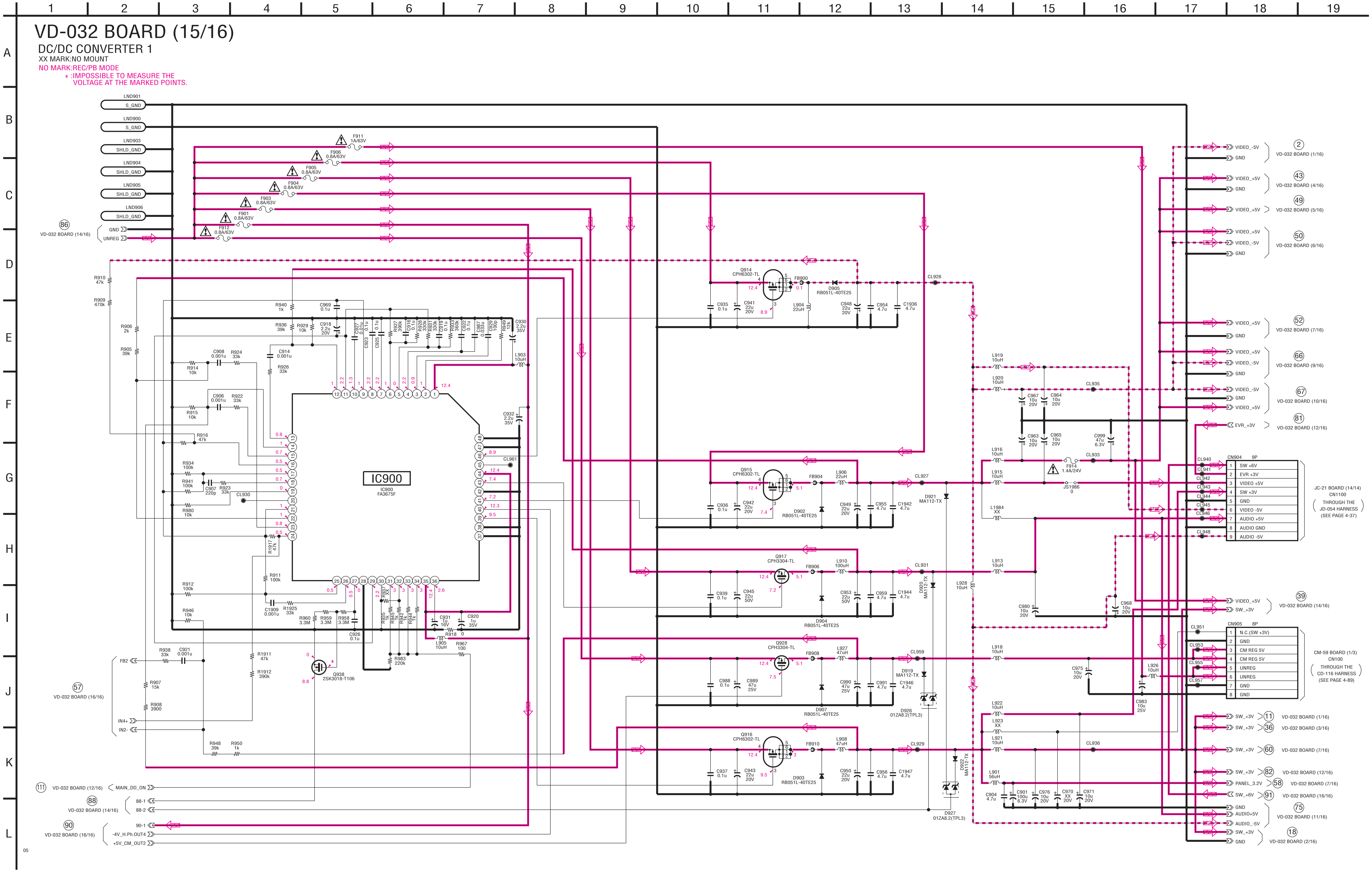
XX MARK:NO MOUNT

NO MARK:REC/PB MODE

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
D602 MA729-(K8).SO
Q623 2SC4081T106R
16.6
13.2
13.8
R622 10k
R624 1k
LCD+13V
LCD+6V
69
VD-032 BOARD (7/16)
Q621 2SC4081T106R
16.6
Q622 2SC4081T106R
13.8
R621 1k
R625 43k ±0.5%
5
4.4
4.4
5
31
VD-032 BOARD (16/16)
DIG_+5V
UNSW_+6V
L621 10uH
IC621 TC7SH00FU-TE85R
C625 0.1u
R626 27k ±0.5%
C627 4.7u
R623 10k
C626 0.001u
83
VD-032 BOARD (16/16)
CP_CLOCK
Q601 UN9211J-(K8).SO
2.4
C624 0.1u
D601 MA729-(K8).SO
L622 10uH
Q609 NDS356AP
+12V_XLR
79
VD-032 BOARD (11/16)
12.4
39
VD-032 BOARD (15/16)
SW_+3V
VIDEO_+5V
2.9
0
C621 1u
IC621
C622 1u
C623 4.7u
C617 0.022u
1.1
R614 1M
R613 100k
R602 100k
R601 1M
0.6
Q602 NDS356AP
6.1
6.1
R605 10k
R615 100 1/10W
11.8
9.9
Q605 2SC4081T106R
9.2
80
VD-032 BOARD (12/16)
MOTOR_12V
Q604 SI2301DS-T1
0
12.4
R603 47k
C604 0.01u
VIDEO_+9V
6
VD-032 BOARD (1/16)
VIDEO_+9V
15
VD-032 BOARD (2/16)
R609 10k
Q607 2SC4081T106R
12.4
Q606 2SC4081T106R
9.9
R606 82k ±0.5%
C606 4.7u
R604 100k
12.4
5.1
C601 0.1u
84
VD-032 BOARD (12/16)
MOTOR_ON
Q603 UN9211J-(K8).SO
C628 0.001u
4.5
R608 10k
R607 100k ±0.5%
Q608 UN9211J-(K8).SO
2.9
92
VD-032 BOARD (16/16)
F1984
93
VD-032 BOARD (16/16)
OPTION_6.1V
OPTION_UNSW
OPTIO_UNSW_+6.1V
F1985 0.8A/63V
F1984 0.8A/63V
L1981 10uH
F1981 0.315A/63V
JS1981 0
JS1983 XX
L1982 10uH
F1982 0.63A/24V
JS1984 0
86
VD-032 BOARD (15/16)
UNREG
GND
87
VD-032 BOARD (16/16)
UNREG
GND
D2907 MA112-TX
F1983 0.315A/63V
D2908 MA112-TX
JS1985 0
L1983 10uH
12.4
Q1981 SI2301DS-T1
12.4
8.4
0
R1987 100k
R1988 47k
2.9
M907 FAN MOTOR
CN1983 2P
FAN +12V
GND
Q1982 UN9211J-(K8).SO
94
VD-032 BOARD (12/16)
FAN_ON
C2961 XX
C2951 XX
D2906 XX
FB2914
C2960 XX 50V
L2912 XX
L2901 XX
C2946 XX
C2947 XX 50V
Q2921 XX
R984 180
R985 180
R986 180
R987 180
R988 180
R989 180
R990 180
R991 180
R992 180
Q904 SI2301DS-T1
R901 10k
R913 100k
R930 1M
R939 1M
R925 390k
R921 470k
R917 100k
Q902 2SC4081T106R
Q903 2SC4081T106R
IC903
IC903 TLV431ACDBV2
R902 10k
R919 91k
F910 0.63A/24V
D909 MA112-TX
D910 MA112-TX
D911 MA112-TX
D912 MA112-TX
D913 MA112-TX
D914 MA112-TX
Q901 HAT1036R-EL
12.4
12.4
0
R903 1M
R964 10k
R932 47k
12.4
Q940 2SK3018-T106
R963 1M
Q941 2SK3018-T106
Q930 2SK3018-T106
4.8
4.8
R920 220k
Q934 CPH3304-TL
9.9
R961 1M
R962 10k
0
8.8
9.9
Q937 2SK3018-T106
C993 0.1u
R1984 100k
R1985 100k
4.8
Q923 2SK3018-T106
CL912
CN1984 6P
ACS1581-MA BOARD CN201
THROUGH THE PD-166 HARNESS (SEE PAGE 4-114)
+12.4V
+12.4V
+12.4V
GND
GND
GND
CL916
Q919 2SA1576A-T106-R
9.9
9.7
R952 470k
R904 0
C977 0.01u
R943 220k
R951 1M
R953 220k
74
VD-032 BOARD (12/16)
BATT_SENSE_UNREG
DROPPED_UNREG
R973 0
8.8
Q925 2SK3018-T106
C940 XX
D929 01ZA8.2(TPL3)
88
VD-032 BOARD (15/16)
88-2
88-1
89-1
89
VD-032 BOARD (16/16)
89-2
89-3
05

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

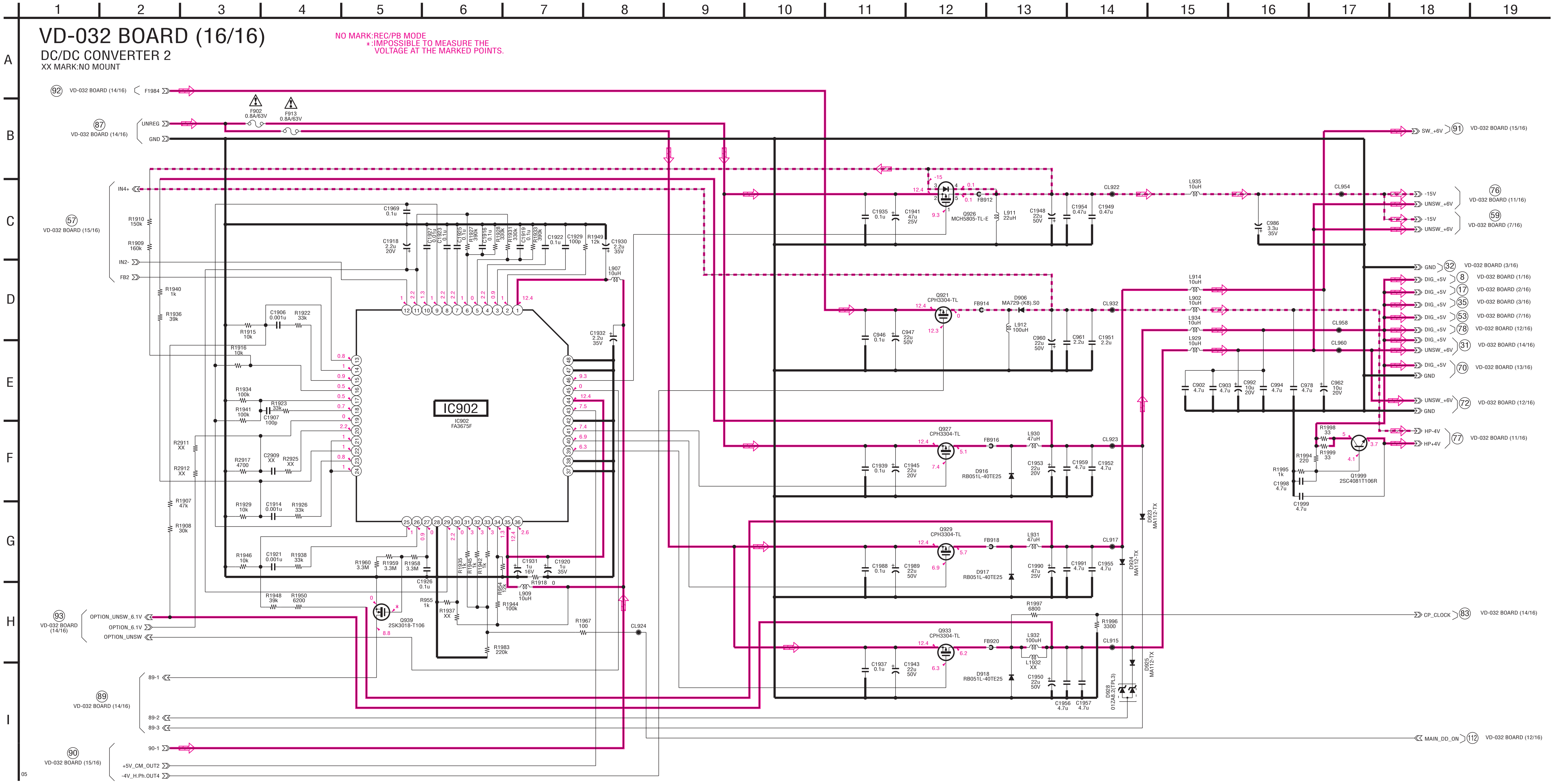
VD-032 (15/16) (DC/DC CONVERTER 1) • See page 4-127 for VD-032 printed wiring board.


VD-032 BOARD (15/16)
DC/DC CONVERTER 1
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
* :IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
A B C D E F G H I J K L
LND901 S_GND
LND900 S_GND
LND903 SHLD_GND
LND904 SHLD_GND
LND905 SHLD_GND
LND906 SHLD_GND
86 VD-032 BOARD (14/16) GND UNREG
F911 1A/63V
F906 0.8A/63V
F905 0.8A/63V
F904 0.8A/63V
F903 0.8A/63V
F901 0.8A/63V
F912 0.8A/63V
IC900
IC900 FA3675F
Q914 CPH6302-TL
Q915 CPH6302-TL
Q917 CPH3304-TL
Q928 CPH3304-TL
Q916 CPH6302-TL
Q938 2SK3018-T106
D905 RB051L-40TE25
D902 RB051L-40TE25
D904 RB051L-40TE25
D907 RB051L-40TE25
D903 RB051L-40TE25
D921 MA112-TX
D920 MA112-TX
D919 MA112-TX
D922 MA112-TX
D926 01ZA8.2(TPL3)
D927 01ZA8.2(TPL3)
F914 1.4A/24V
JS1986
CN904 9P
1 SW +6V
2 EVR +3V
3 VIDEO +5V
4 SW +3V
5 GND
6 VIDEO -5V
7 AUDIO +5V
8 AUDIO GND
9 AUDIO -5V
JC-21 BOARD (14/14) CN1100 THROUGH THE JD-054 HARNESS (SEE PAGE 4-37)
CN905 8P
1 N.C.(SW +3V)
2 GND
3 CM REG 5V
4 CM REG 5V
5 UNREG
6 UNREG
7 GND
8 GND
CM-59 BOARD (1/3) CN100 THROUGH THE CD-116 HARNESS (SEE PAGE 4-89)
2 VD-032 BOARD (1/16)
43 VD-032 BOARD (4/16)
49 VD-032 BOARD (5/16)
50 VD-032 BOARD (6/16)
52 VD-032 BOARD (7/16)
66 VD-032 BOARD (9/16)
67 VD-032 BOARD (10/16)
81 VD-032 BOARD (12/16)
39 VD-032 BOARD (14/16)
11 VD-032 BOARD (1/16)
36 VD-032 BOARD (3/16)
60 VD-032 BOARD (7/16)
82 VD-032 BOARD (12/16)
58 VD-032 BOARD (7/16)
91 VD-032 BOARD (16/16)
75 VD-032 BOARD (11/16)
18 VD-032 BOARD (2/16)
57 VD-032 BOARD (16/16)
111 VD-032 BOARD (12/16) MAIN_DD_ON
88 VD-032 BOARD (14/16) 88-1 88-2
90 VD-032 BOARD (16/16) 90-1 -4V_H.Ph.OUT4 +5V_CM_OUT2
FB2 IN4+ IN2-
05

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

VD-032 (16/16) (DC/DC CONVERTER 2) • See page 4-127 for VD-032 printed wiring board.


1
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3
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5
6
7
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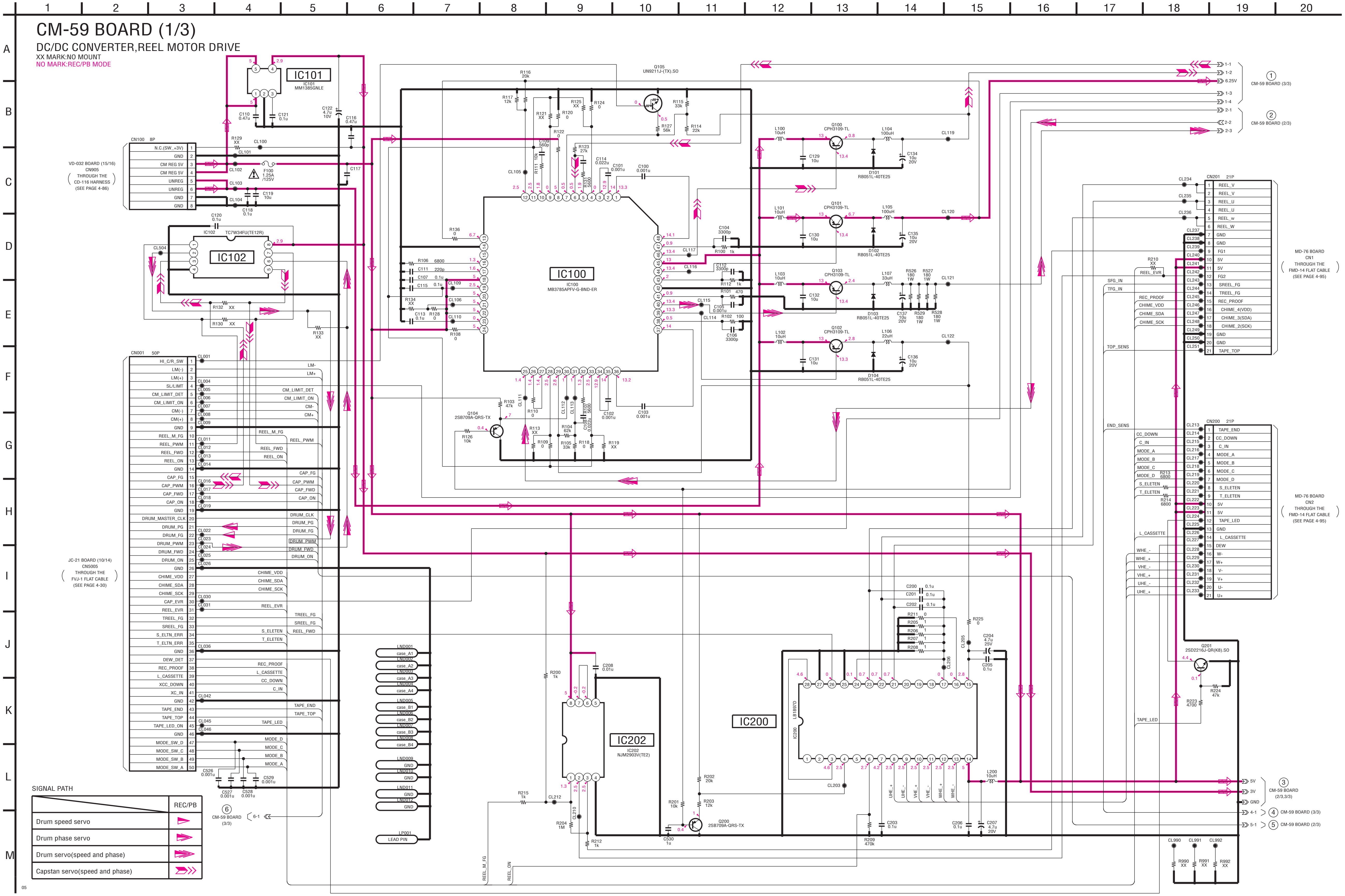
9
10
11
12
13
14
15
16
17
18
19
A
B
C
D
E
F
G
H
I
VD-032 BOARD (16/16)
DC/DC CONVERTER 2
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
⁎:IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.
92 VD-032 BOARD (14/16) F1984
87 VD-032 BOARD (14/16) UNREG GND
F902 0.8A/63V
F913 0.8A/63V
57 VD-032 BOARD (15/16) IN4+ IN2- FB2
R1910 150k
R1909 160k
R1940 1k
R1936 39k
IC902
IC902 FA3675F
Q926 MCH5805-TL-E
Q921 CPH3304-TL
Q927 CPH3304-TL
Q929 CPH3304-TL
Q933 CPH3304-TL
Q939 2SK3018-T106
Q1999 2SC4081T106R
D906 MA729-(K8).S0
D916 RB051L-40TE25
D917 RB051L-40TE25
D918 RB051L-40TE25
D923 MA112-TX
D924 MA112-TX
D925 MA112-TX
D928 01ZA8.2(TPL3)
L935 10uH
L914 10uH
L902 10uH
L934 10uH
L929 10uH
L930 47uH
L931 47uH
L932 100uH
L911 22uH
L912 100uH
L907 10uH
L909 10uH
CL922
CL954
CL932
CL958
CL960
CL923
CL917
CL915
CL924
91 VD-032 BOARD (15/16) SW_+6V
76 VD-032 BOARD (11/16) -15V UNSW_+6V
59 VD-032 BOARD (7/16) -15V UNSW_+6V
32 VD-032 BOARD (3/16) GND
8 VD-032 BOARD (1/16) DIG_+5V
17 VD-032 BOARD (2/16) DIG_+5V
35 VD-032 BOARD (3/16) DIG_+5V
53 VD-032 BOARD (7/16) DIG_+5V
78 VD-032 BOARD (12/16) DIG_+5V
31 VD-032 BOARD (14/16) DIG_+5V UNSW_+6V
70 VD-032 BOARD (13/16) DIG_+5V GND
72 VD-032 BOARD (12/16) UNSW_+6V GND
77 VD-032 BOARD (11/16) HP-4V HP+4V
83 VD-032 BOARD (14/16) CP_CLOCK
112 VD-032 BOARD (12/16) MAIN_DD_ON
93 VD-032 BOARD (14/16) OPTION_UNSW_6.1V OPTION_6.1V OPTION_UNSW
89 VD-032 BOARD (14/16) 89-1 89-2 89-3
90 VD-032 BOARD (15/16) 90-1 +5V_CM_OUT2 -4V_H.Ph.OUT4
05

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

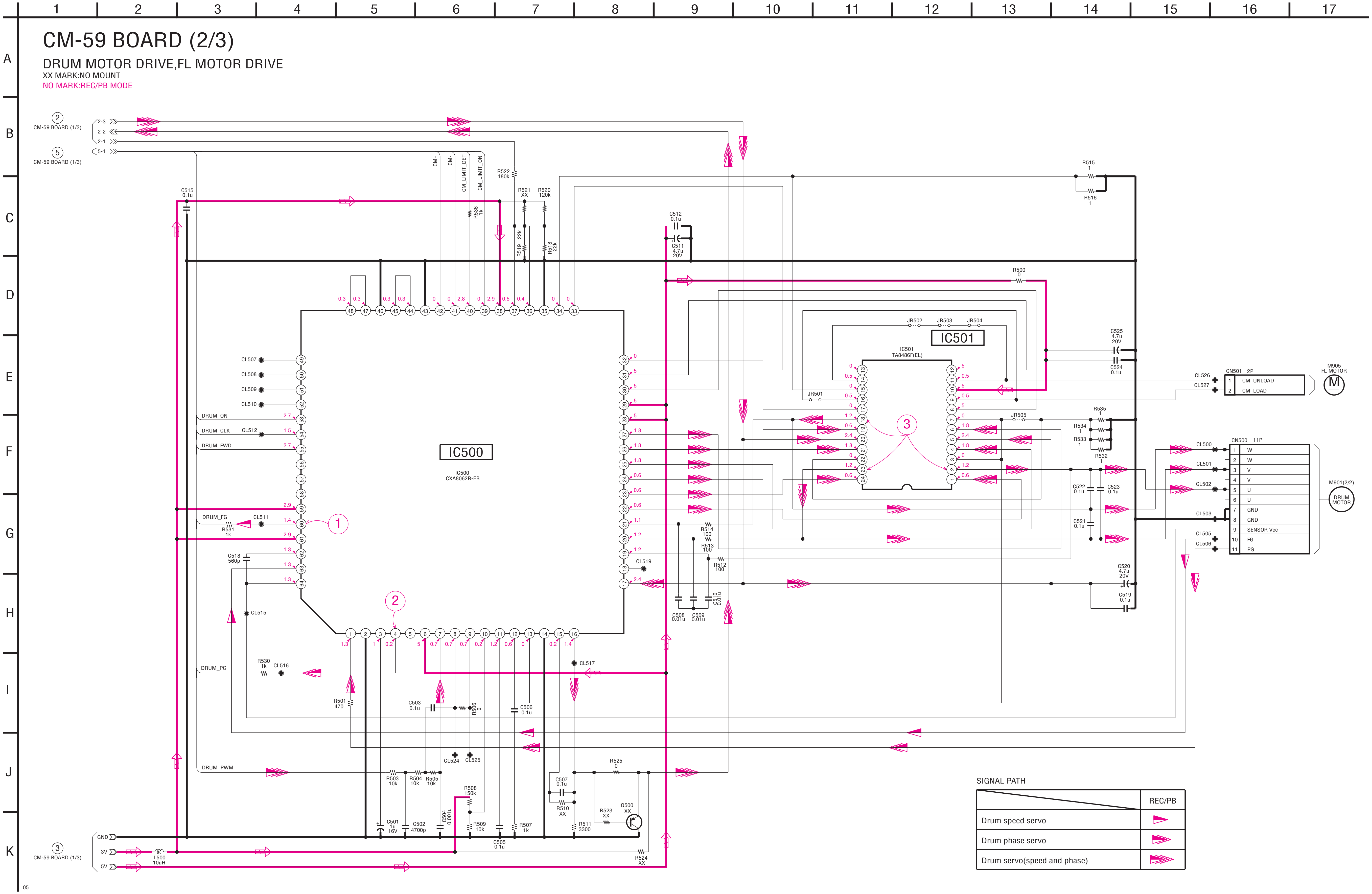
CM-59 (1/3) (DC/DC CONVERTER, REEL MOTOR DRIVE) • See page 4-131 for CM-59 printed wiring board.


CM-59 BOARD (1/3)
DC/DC CONVERTER,REEL MOTOR DRIVE
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
IC101
MM1385GNLE
IC102
TC7W34FU(TE12R)
IC100
MB3785APFV-G-BND-ER
IC200
IC202
NJM2903V(TE2)
Q100 CPH3109-TL
Q101 CPH3109-TL
Q102 CPH3109-TL
Q103 CPH3109-TL
Q104 2SB709A-QRS-TX
Q105 UN9211J-(TX).SO
Q200 2SB709A-QRS-TX
Q201 2SD2216J-QR(K8).SO
D101 RB051L-40TE25
D102 RB051L-40TE25
D103 RB051L-40TE25
D104 RB051L-40TE25
F100 1.25A /125V
CN100 8P
VD-032 BOARD (15/16) CN905 THROUGH THE CD-116 HARNESS (SEE PAGE 4-86)
CN001 50P
JC-21 BOARD (10/14) CN5005 THROUGH THE FVJ-1 FLAT CABLE (SEE PAGE 4-30)
CN201 21P
MD-76 BOARD CN1 THROUGH THE FMD-14 FLAT CABLE (SEE PAGE 4-95)
CN200 21P
MD-76 BOARD CN2 THROUGH THE FMD-14 FLAT CABLE (SEE PAGE 4-95)
① CM-59 BOARD (3/3)
② CM-59 BOARD (2/3)
③ CM-59 BOARD (2/3,3/3)
④ CM-59 BOARD (3/3)
⑤ CM-59 BOARD (2/3)
⑥ CM-59 BOARD (3/3)
SIGNAL PATH
REC/PB
Drum speed servo
Drum phase servo
Drum servo(speed and phase)
Capstan servo(speed and phase)
05

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

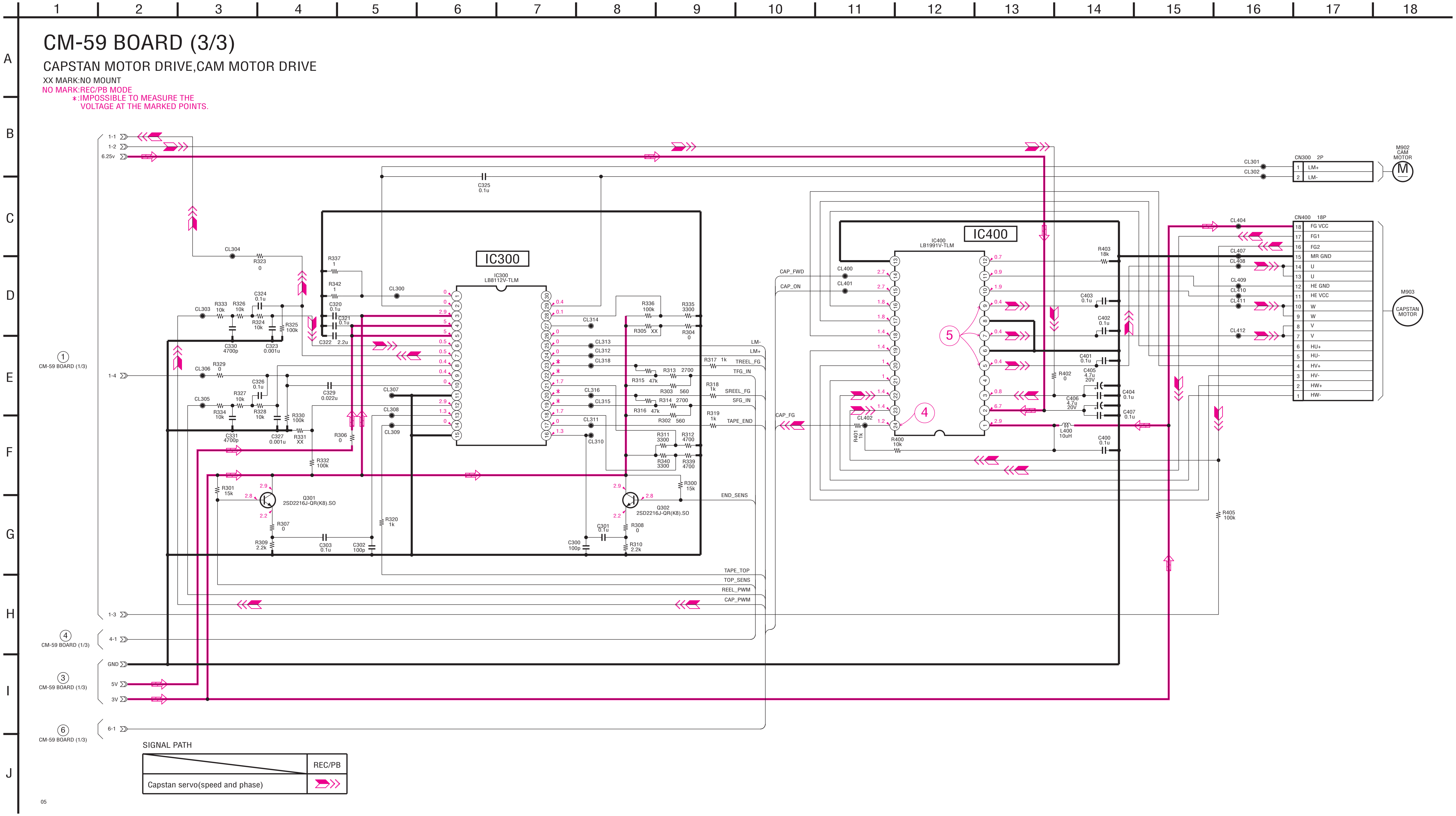
CM-59 (2/3) (DRUM MOTOR DRIVE, FL MOTOR DRIVE) • See page 4-131 for CM-59 printed wiring board. • See page 4-176 for waveforms.


CM-59 BOARD (2/3)
DRUM MOTOR DRIVE,FL MOTOR DRIVE
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
A B C D E F G H I J K
② CM-59 BOARD (1/3)
⑤ CM-59 BOARD (1/3)
③ CM-59 BOARD (1/3)
2-3
2-2
2-1
5-1
GND
3V
5V
L500 10uH
IC500
IC500 CXA8062R-EB
IC501
IC501 TA8486F(EL)
CM+
CM-
CM_LIMIT_DET
CM_LIMIT_ON
DRUM_ON
DRUM_CLK
DRUM_FWD
DRUM_FG
DRUM_PG
DRUM_PWM
C515 0.1u
R522 180k
R521 XX
R520 120k
R536 1k
R519 22k
R518 22k
C512 0.1u
C511 4.7u 20V
R515 1
R516 1
R500 0
JR502
JR503
JR504
JR501
JR505
C525 4.7u 20V
C524 0.1u
CL526
CL527
CN501 2P
CM_UNLOAD
CM_LOAD
M905 FL MOTOR
M
R535 1
R534 1
R533 1
R532 1
CL507
CL508
CL509
CL510
CL512
CL511
R531 1k
C518 560p
CL515
CL519
R514 100
R513 100
R512 100
C508 0.01u
C509 0.01u
C510 0.01u
C522 0.1u
C523 0.1u
C521 0.1u
C520 4.7u 20V
C519 0.1u
CL500
CL501
CL502
CL503
CL505
CL506
CN500 11P
W
W
V
V
U
U
GND
GND
SENSOR Vcc
FG
PG
M901(2/2) DRUM MOTOR
R530 1k
CL516
R501 470
C503 0.1u
R506 0
C506 0.1u
CL517
CL524
CL525
R503 10k
R504 10k
R505 10k
R508 150k
C501 1u 16V
C502 4700p
C504 0.001u
R509 10k
C505 0.1u
R507 1k
C507 0.1u
R510 XX
R525 0
R523 XX
Q500 XX
R511 3300
R524 XX
①
②
③
05

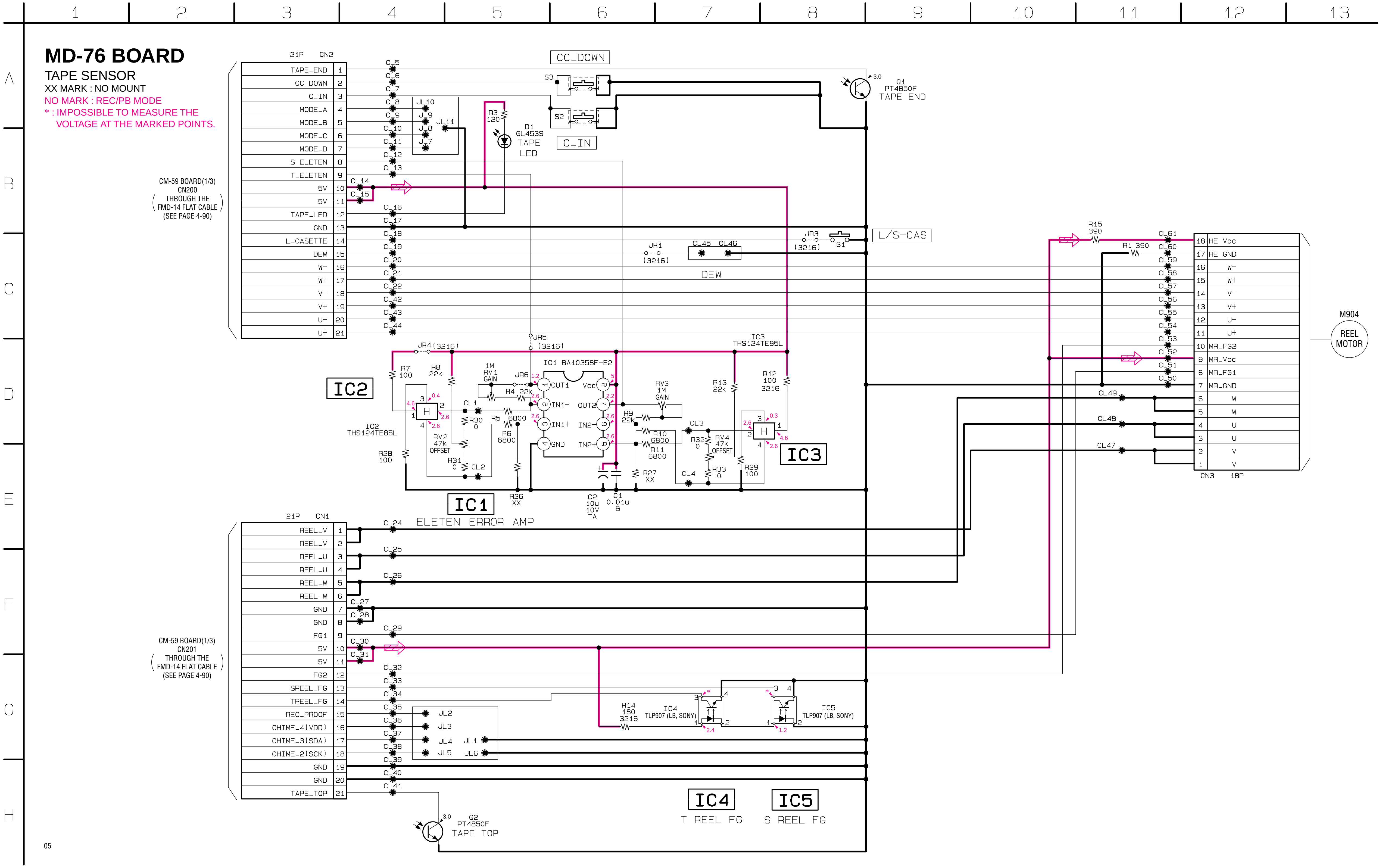
SIGNAL PATH

	REC/PB
Drum speed servo	▷
Drum phase servo	▷▷
Drum servo(speed and phase)	▷▷▷

CM-59 (3/3) (CAPSTAN MOTOR DRIVE, CAM MOTOR DRIVE) • See page 4-131 for CM-59 printed wiring board. • See page 4-176 for waveforms.

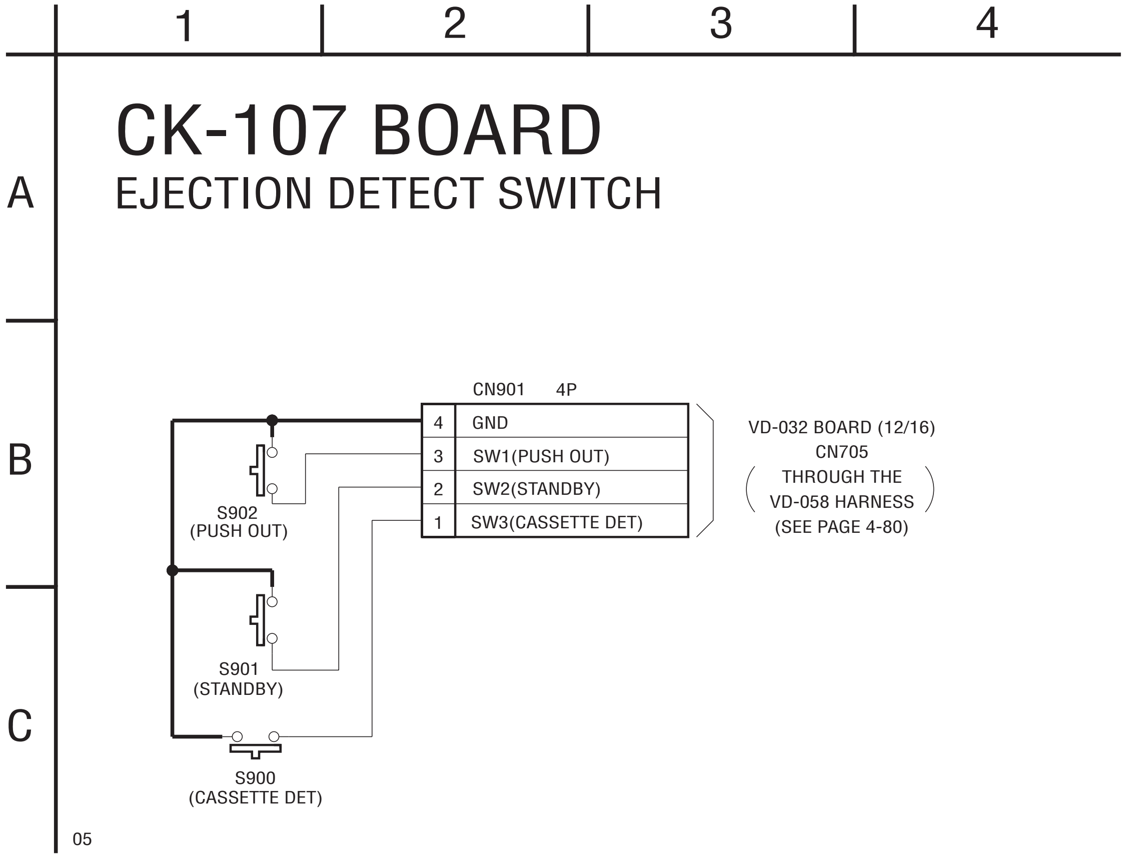

CM-59 BOARD (3/3)
CAPSTAN MOTOR DRIVE,CAM MOTOR DRIVE
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
∗:IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.
IC300
IC300 LB8112V-TLM
IC400
IC400 LB1991V-TLM
Q301 2SD2216J-QR(K8).SO
Q302 2SD2216J-QR(K8).SO
M902 CAM MOTOR
M903 CAPSTAN MOTOR
CN300 2P
LM+
LM-
CN400 18P
FG VCC
FG1
FG2
MR GND
U
HE GND
HE VCC
W
V
HU+
HU-
HV+
HV-
HW+
HW-
CAP_FWD
CAP_ON
CAP_FG
TREEL_FG
TFG_IN
SREEL_FG
SFG_IN
TAPE_END
END_SENS
TAPE_TOP
TOP_SENS
REEL_PWM
CAP_PWM
① CM-59 BOARD (1/3)
④ CM-59 BOARD (1/3)
③ CM-59 BOARD (1/3)
⑥ CM-59 BOARD (1/3)
1-1
1-2
6.25V
1-4
1-3
4-1
GND
5V
3V
6-1
SIGNAL PATH
REC/PB
Capstan servo(speed and phase)
05

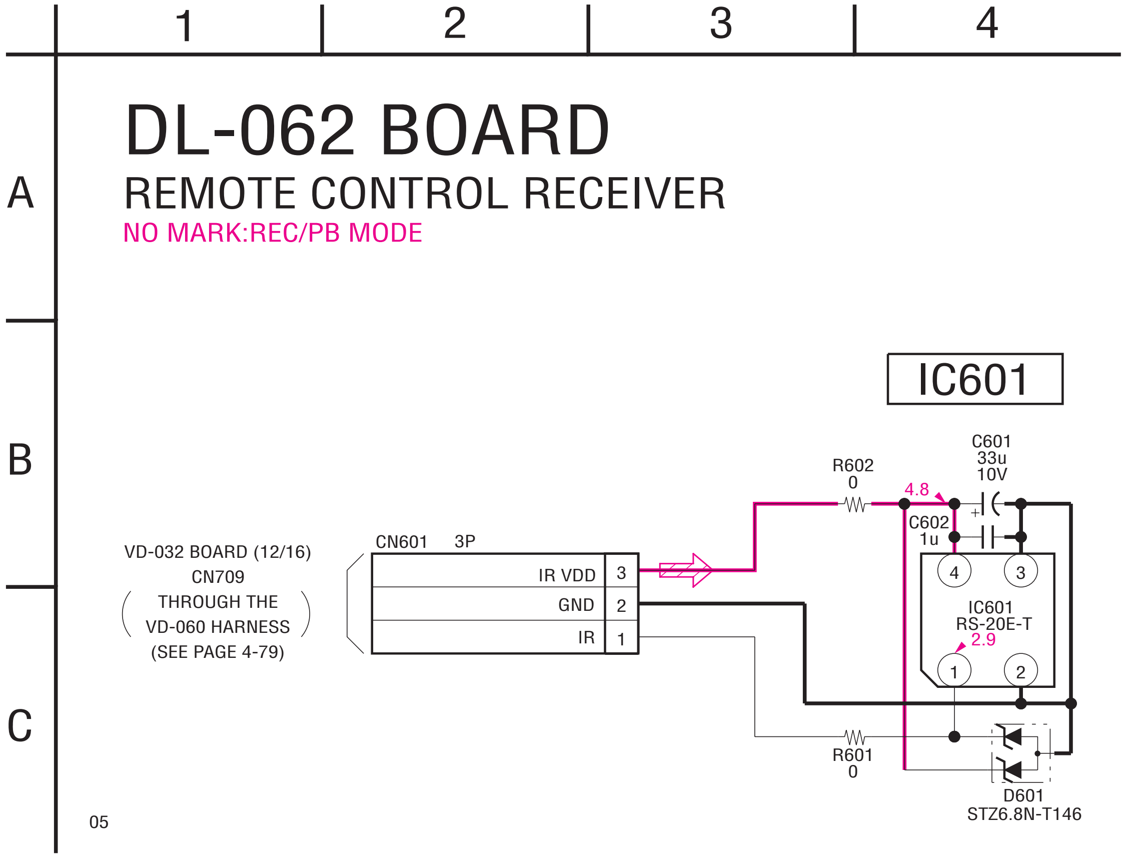
MD-76 (TAPE SENSOR) • **See page 4-135 for MD-76 printed wiring board.**


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
MD-76 BOARD
TAPE SENSOR
XX MARK : NO MOUNT
NO MARK : REC/PB MODE
* : IMPOSSIBLE TO MEASURE THE VOLTAGE AT THE MARKED POINTS.
CM-59 BOARD(1/3) CN200 (THROUGH THE FMD-14 FLAT CABLE) (SEE PAGE 4-90)
21P CN2
TAPE_END
CC_DOWN
C_IN
MODE_A
MODE_B
MODE_C
MODE_D
S_ELETEN
T_ELETEN
5V
5V
TAPE_LED
GND
L_CASETTE
DEW
W−
W+
V−
V+
U−
U+
CC_DOWN
C_IN
S3
S2
R3 120
D1 GL453S TAPE LED
Q1 PT4850F TAPE END
L/S-CAS
S1
JR3 (3216)
JR1 (3216)
DEW
CL45
CL46
JR4 (3216)
JR5 (3216)
IC1 BA10358F-E2
IC2
IC2 THS124TE85L
IC3
IC3 THS124TE85L
IC1
ELETEN ERROR AMP
OUT1
VCC
IN1−
OUT2
IN1+
IN2−
GND
IN2+
R7 100
R8 22k
1M RV1 GAIN
JR6
R4 22k
R5 6800
R6 6800
R30 0
R31 0
RV2 47k OFFSET
R28 100
R26 XX
C2 10u 10V TA
C1 0.01u B
R27 XX
RV3 1M GAIN
R9 22k
R10 6800
R11 6800
R13 22k
R12 100 3216
R32 0
RV4 47k OFFSET
R33 0
R29 100
R15 390
R1 390
M904 REEL MOTOR
CN3 18P
HE Vcc
HE GND
W−
W+
V−
V+
U−
U+
MR_FG2
MR_Vcc
MR_FG1
MR_GND
W
W
U
U
V
V
CM-59 BOARD(1/3) CN201 (THROUGH THE FMD-14 FLAT CABLE) (SEE PAGE 4-90)
21P CN1
REEL_V
REEL_V
REEL_U
REEL_U
REEL_W
REEL_W
GND
GND
FG1
5V
5V
FG2
SREEL_FG
TREEL_FG
REC_PROOF
CHIME_4(VDD)
CHIME_3(SDA)
CHIME_2(SCK)
GND
GND
TAPE_TOP
R14 180 3216
IC4 TLP907 (LB, SONY)
IC5 TLP907 (LB, SONY)
IC4
T REEL FG
IC5
S REEL FG
Q2 PT4850F TAPE TOP
05

CK-107 (EJECTION DETECT SWITCH)/DL-062 (REMOTE CONTROL RECEIVER)

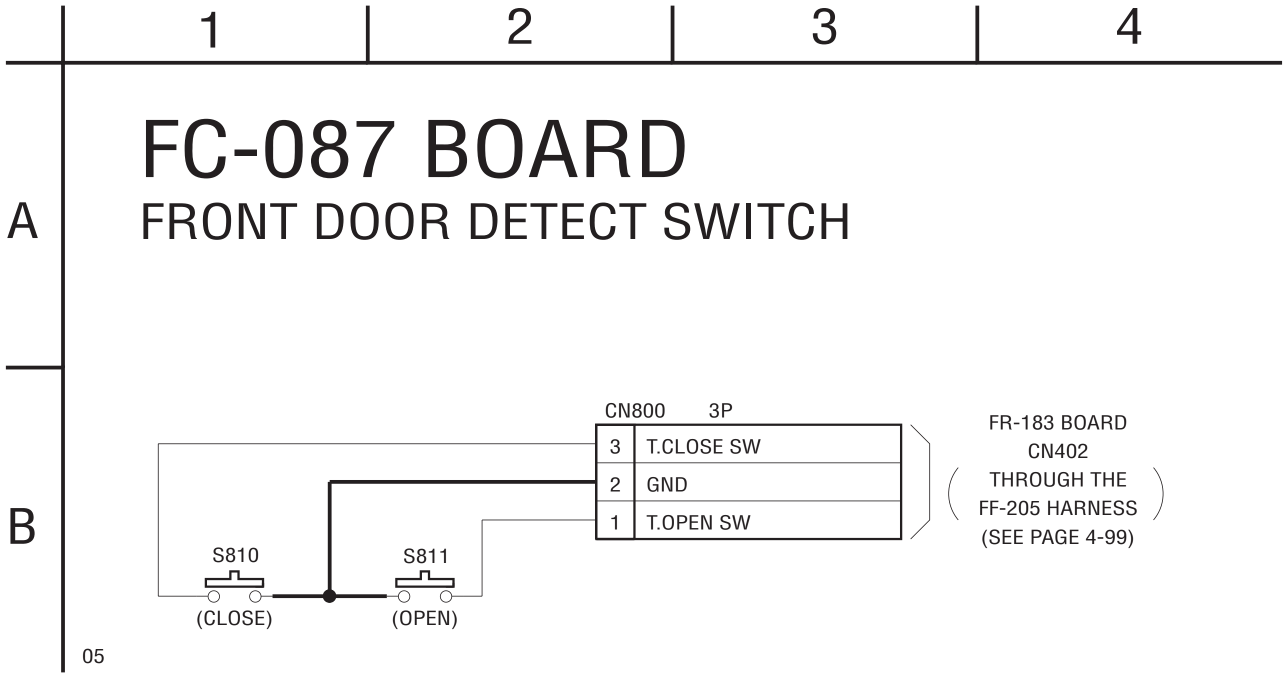
- See page 4-137 for CK-107, DL-062 printed wiring board.

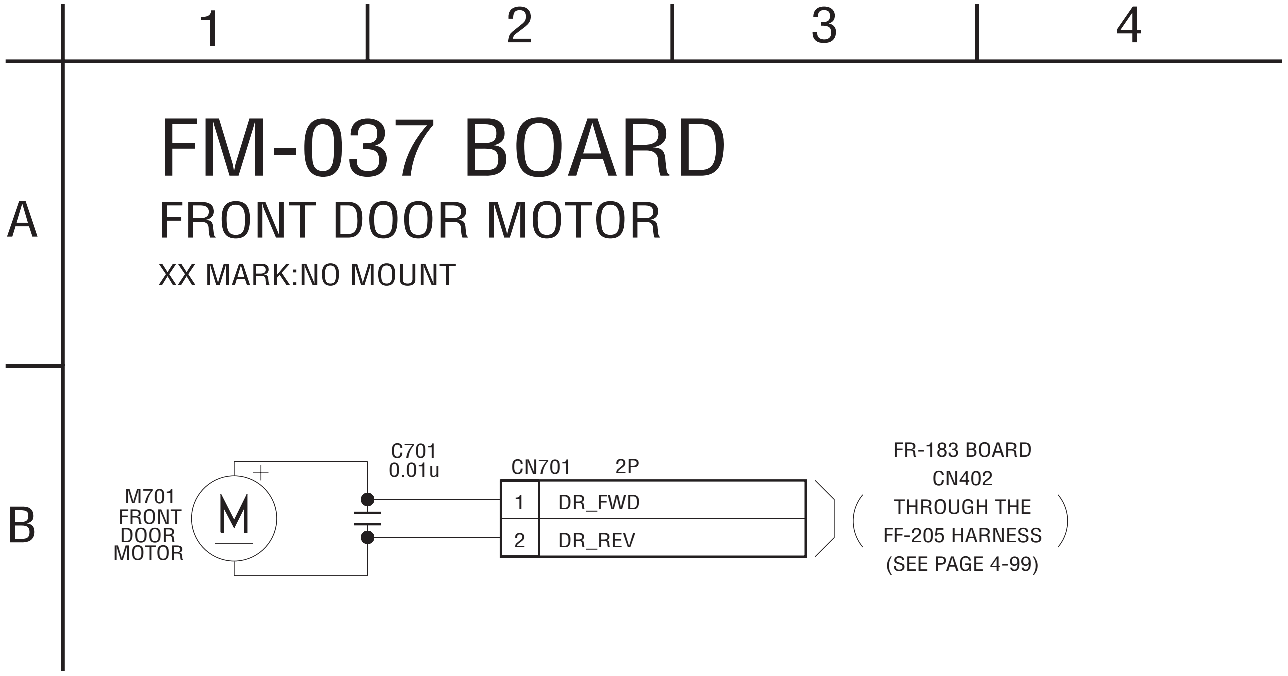

1
2
3
4
A
B
C
CK-107 BOARD
EJECTION DETECT SWITCH
CN901 4P
4 GND
3 SW1(PUSH OUT)
2 SW2(STANDBY)
1 SW3(CASSETTE DET)
VD-032 BOARD (12/16)
CN705
THROUGH THE
VD-058 HARNESS
(SEE PAGE 4-80)
S902
(PUSH OUT)
S901
(STANDBY)
S900
(CASSETTE DET)
05


1
2
3
4
A
B
C
DL-062 BOARD
REMOTE CONTROL RECEIVER
NO MARK:REC/PB MODE
IC601
VD-032 BOARD (12/16)
CN709
THROUGH THE
VD-060 HARNESS
(SEE PAGE 4-79)
CN601 3P
IR VDD 3
GND 2
IR 1
R602
0
4.8
C601
33u
10V
C602
1u
4
3
IC601
RS-20E-T
2.9
1
2
R601
0
D601
STZ6.8N-T146
05

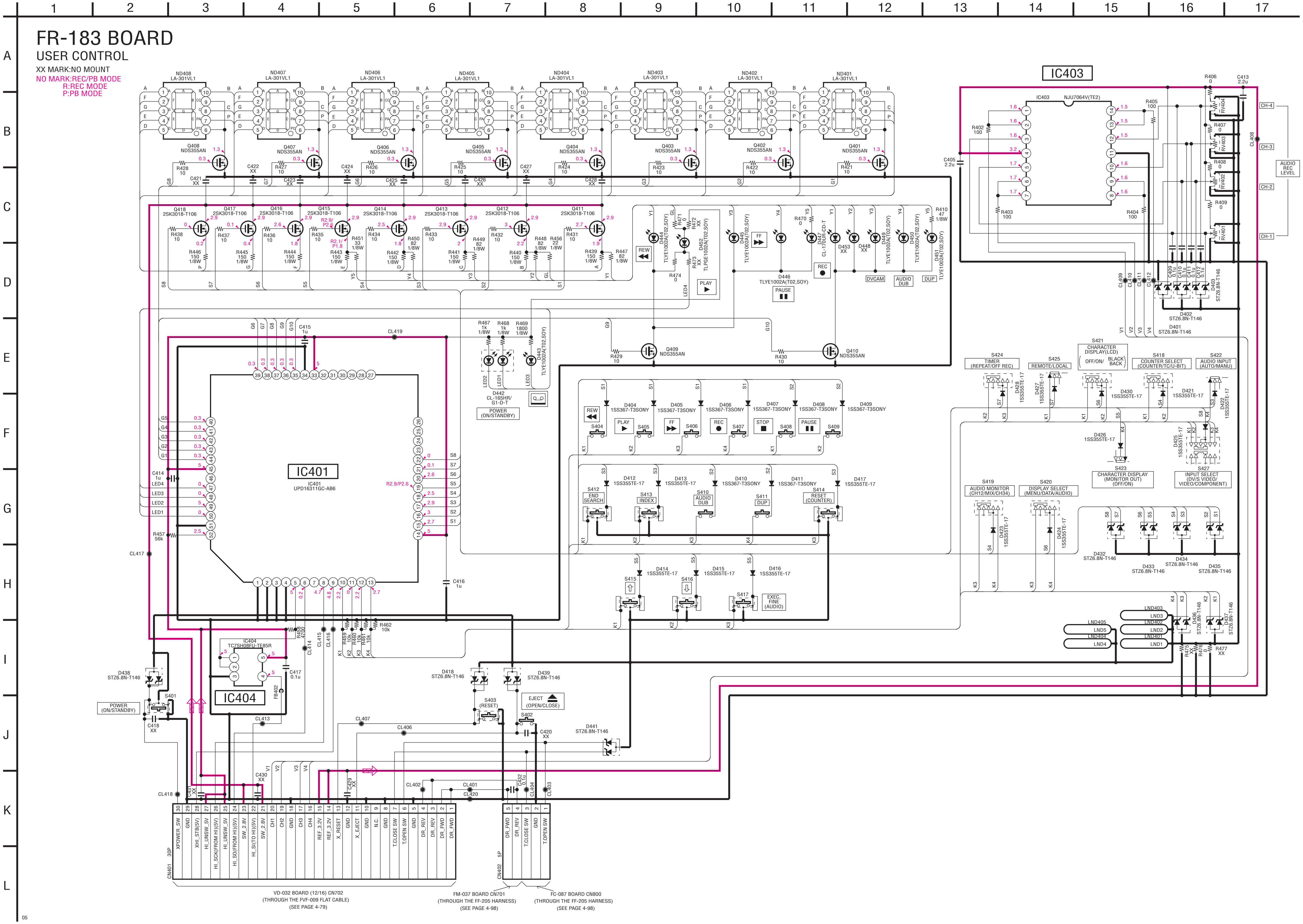
FC-087 (FRONT DOOR DETECT SWITCH)/FM-037 (FRONT DOOR MOTOR)

- See page 4-138 for FC-087, FM-037 printed wiring board.


1
2
3
4
A
B
FC-087 BOARD
FRONT DOOR DETECT SWITCH
CN800 3P
3 T.CLOSE SW
2 GND
1 T.OPEN SW
FR-183 BOARD
CN402
THROUGH THE
FF-205 HARNESS
(SEE PAGE 4-99)
S810
(CLOSE)
S811
(OPEN)
05


1
2
3
4
A
B
FM-037 BOARD
FRONT DOOR MOTOR
XX MARK:NO MOUNT
M701
FRONT
DOOR
MOTOR
M
C701
0.01u
CN701 2P
1 DR_FWD
2 DR_REV
FR-183 BOARD
CN402
THROUGH THE
FF-205 HARNESS
(SEE PAGE 4-99)

FR-183 (USER CONTROL) • See page 4-139 for FR-183 printed wiring board.

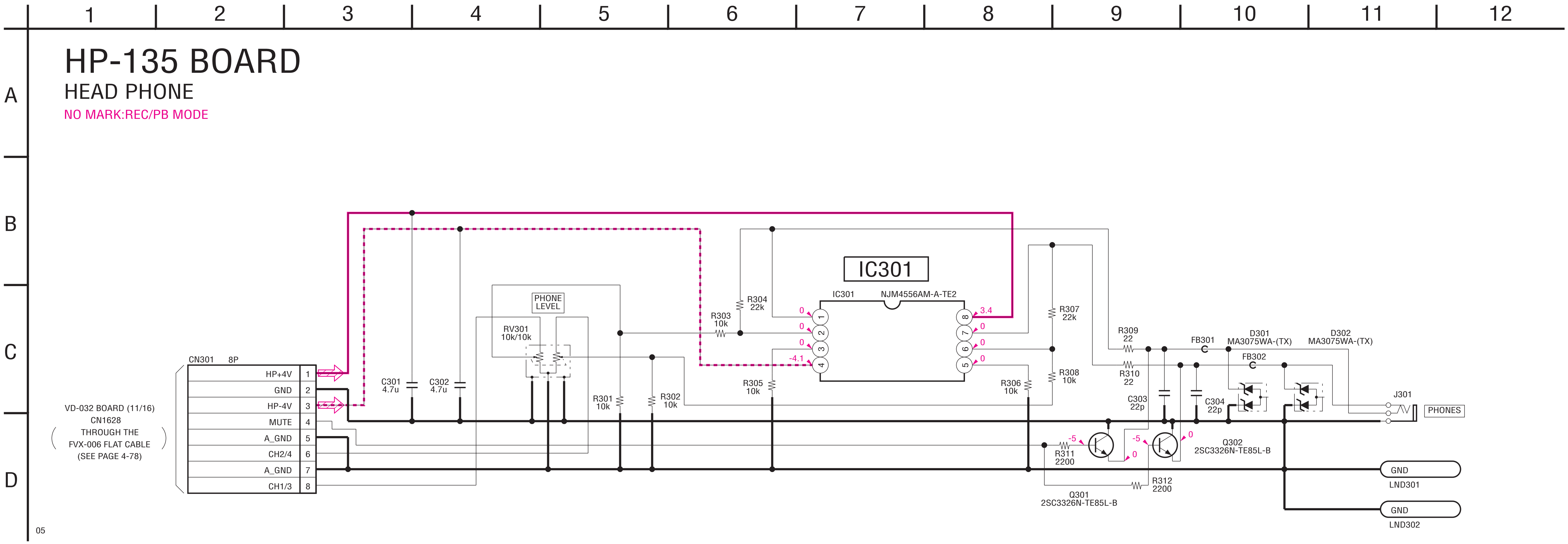

FR-183 BOARD
USER CONTROL
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
ND408 LA-301VL1
ND407 LA-301VL1
ND406 LA-301VL1
ND405 LA-301VL1
ND404 LA-301VL1
ND403 LA-301VL1
ND402 LA-301VL1
ND401 LA-301VL1
IC403
IC403 NJU7064V(TE2)
AUDIO REC LEVEL
IC401
IC401 UPD16311GC-AB6
IC404
IC404 TC7SH08FU-TE85R
POWER (ON/STANDBY)
S424 TIMER (REPEAT/OFF REC)
S425 REMOTE/LOCAL
S421 CHARACTER DISPLAY(LCD) OFF/ON/BLACK BACK
S418 COUNTER SELECT (COUNTER/TC/U-BIT)
S422 AUDIO INPUT (AUTO/MANU)
S423 CHARACTER DISPLAY (MONITOR OUT) (OFF/ON)
S427 INPUT SELECT (DV/S VIDEO/VIDEO/COMPONENT)
S419 AUDIO MONITOR (CH12/MIX/CH34)
S420 DISPLAY SELECT (MENU/DATA/AUDIO)
S412 END SEARCH
S413 INDEX
S410 AUDIO DUB
S411 DUP
S414 RESET (COUNTER)
S415
S416
S417 EXEC. FINE (AUDIO)
S403 (RESET)
S402
EJECT (OPEN/CLOSE)
S401
CN401 30P
CN402 5P
VD-032 BOARD (12/16) CN702 (THROUGH THE FVF-009 FLAT CABLE) (SEE PAGE 4-79)
FM-037 BOARD CN701 (THROUGH THE FF-205 HARNESS) (SEE PAGE 4-98)
FC-087 BOARD CN800 (THROUGH THE FF-205 HARNESS) (SEE PAGE 4-98)
05

HP-135 (HEAD PHONE) • **See page 4-143 for HP-135 printed wiring board.**

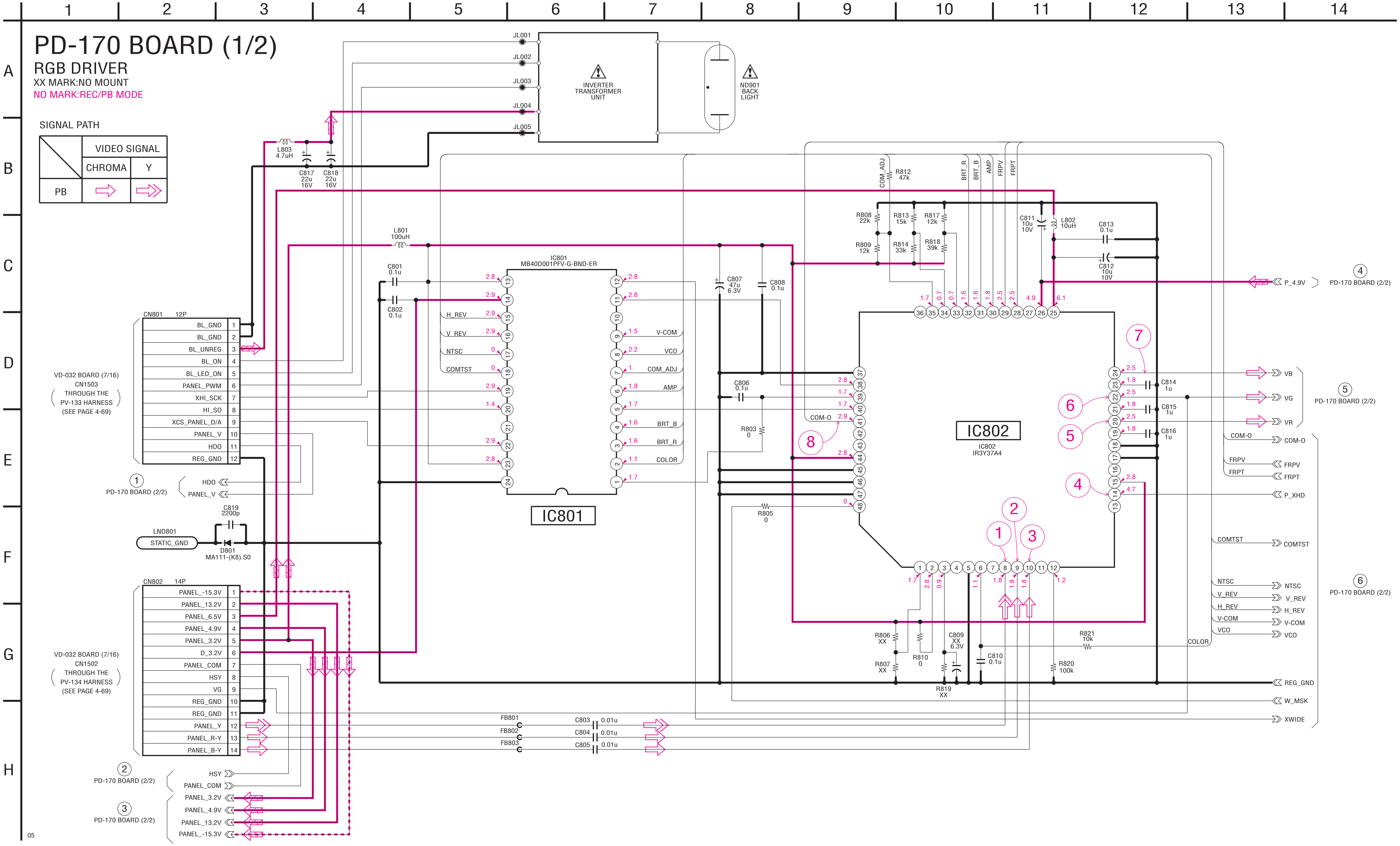
HP-135 BOARD

HEAD PHONE

NO MARK:REC/PB MODE

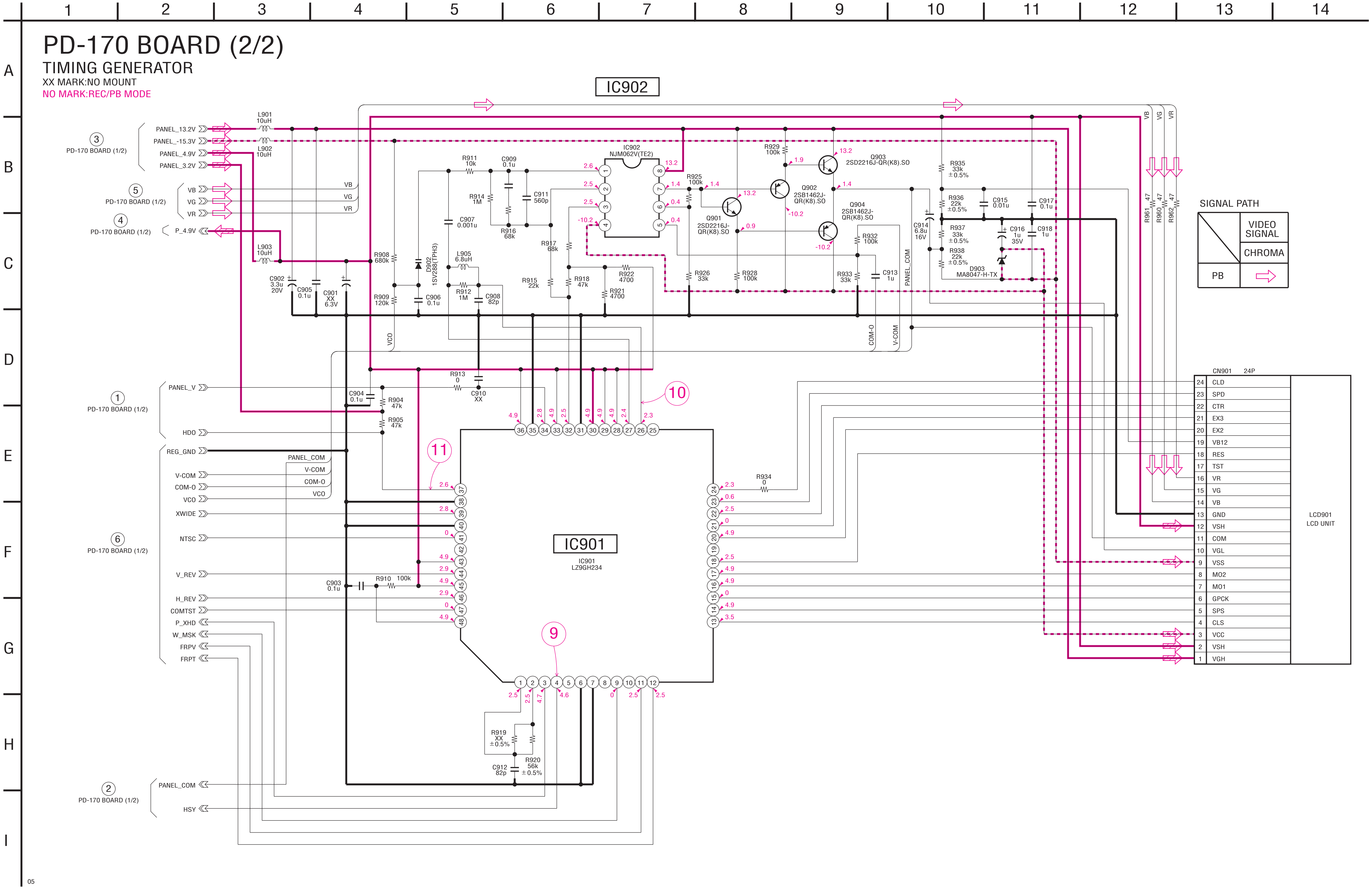

1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
IC301
IC301 NJM4556AM-A-TE2
PHONE LEVEL
RV301 10k/10k
CN301 8P
HP+4V 1
GND 2
HP-4V 3
MUTE 4
A_GND 5
CH2/4 6
A_GND 7
CH1/3 8
VD-032 BOARD (11/16) CN1628
THROUGH THE FVX-006 FLAT CABLE
(SEE PAGE 4-78)
C301 4.7u
C302 4.7u
R301 10k
R302 10k
R303 10k
R304 22k
R305 10k
R306 10k
R307 22k
R308 10k
R309 22
R310 22
R311 2200
R312 2200
C303 22p
C304 22p
FB301
FB302
D301 MA3075WA-(TX)
D302 MA3075WA-(TX)
Q301 2SC3326N-TE85L-B
Q302 2SC3326N-TE85L-B
J301
PHONES
GND
LND301
GND
LND302
0
0
0
-4.1
3.4
0
0
0
-5
0
-5
0
05

PD-170 (1/2) (RGB DRIVER) • See page 4-145 for PD-170 printed wiring board. • See page 4-177 for waveforms.

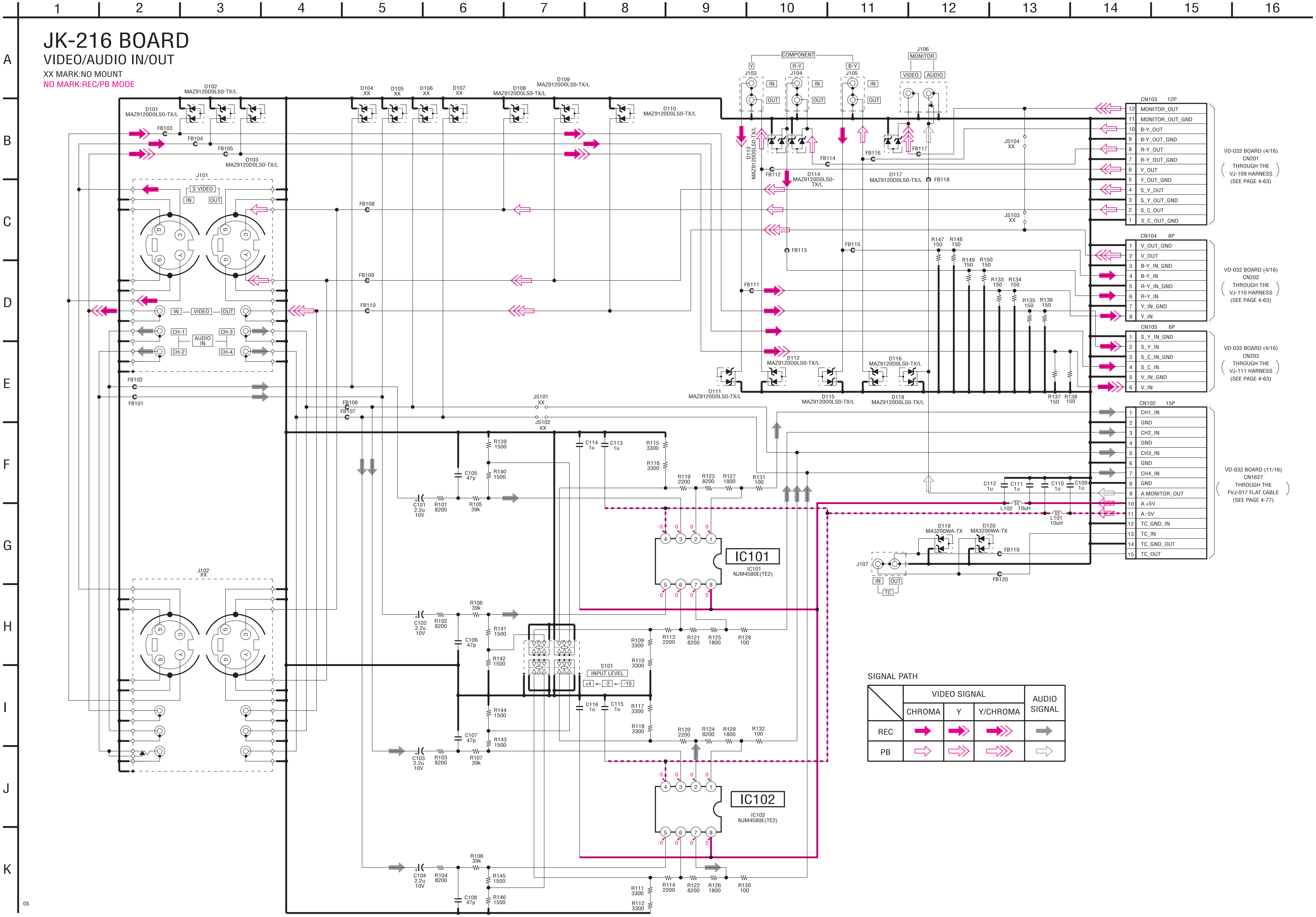

1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
PD-170 BOARD (1/2)
RGB DRIVER
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
PB
JL001
JL002
JL003
JL004
JL005
INVERTER TRANSFORMER UNIT
ND901 BACK LIGHT
L803 4.7uH
C817 22u 16V
C818 22u 16V
L801 100uH
C801 0.1u
C802 0.1u
IC801 MB40D001PFV-G-BND-ER
IC801
H_REV
V_REV
NTSC
COMTST
V-COM
VCO
COM_ADJ
AMP
BRT_B
BRT_R
COLOR
C807 47u 6.3V
C808 0.1u
C806 0.1u
R803 0
R805 0
COM-O
IC802
IC802 IR3Y37A4
COM_ADJ
R812 47k
BRT_R
BRT_B
AMP
FRPV
FRPT
R808 22k
R809 12k
R813 15k
R814 33k
R817 12k
R818 39k
C811 10u 10V
L802 10uH
C813 0.1u
C812 10u 10V
C814 1u
C815 1u
C816 1u
P_4.9V
PD-170 BOARD (2/2)
VB
VG
VR
COM-O
FRPV
FRPT
P_XHD
COMTST
NTSC
V_REV
H_REV
V-COM
VCO
COLOR
REG_GND
W_MSK
XWIDE
R806 XX
R807 XX
R810 0
C809 XX 6.3V
R819 XX
C810 0.1u
R821 10k
R820 100k
CN801 12P
BL_GND
BL_GND
BL_UNREG
BL_ON
BL_LED_ON
PANEL_PWM
XHI_SCK
HI_SO
XCS_PANEL_D/A
PANEL_V
HDO
REG_GND
VD-032 BOARD (7/16) CN1503 THROUGH THE PV-133 HARNESS (SEE PAGE 4-69)
PD-170 BOARD (2/2)
HDO
PANEL_V
C819 2200p
LND801
STATIC_GND
D801 MA111-(K8).SO
CN802 14P
PANEL_-15.3V
PANEL_13.2V
PANEL_6.5V
PANEL_4.9V
PANEL_3.2V
D_3.2V
PANEL_COM
HSY
VG
REG_GND
REG_GND
PANEL_Y
PANEL_R-Y
PANEL_B-Y
VD-032 BOARD (7/16) CN1502 THROUGH THE PV-134 HARNESS (SEE PAGE 4-69)
FB801
FB802
FB803
C803 0.01u
C804 0.01u
C805 0.01u
HSY
PANEL_COM
PANEL_3.2V
PANEL_4.9V
PANEL_13.2V
PANEL_-15.3V
05

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

PD-170 (2/2) (TIMING GENERATOR) • See page 4-145 for PD-170 printed wiring board. • See page 4-177, 178 for waveforms.


1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I
PD-170 BOARD (2/2)
TIMING GENERATOR
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
IC902
IC902 NJM062V(TE2)
IC901
IC901 LZ9GH234
③ PD-170 BOARD (1/2)
PANEL_13.2V
PANEL_-15.3V
PANEL_4.9V
PANEL_3.2V
⑤ PD-170 BOARD (1/2)
VB
VG
VR
④ PD-170 BOARD (1/2)
P_4.9V
① PD-170 BOARD (1/2)
PANEL_V
HDO
REG_GND
PANEL_COM
V-COM
COM-O
VCO
XWIDE
⑥ PD-170 BOARD (1/2)
NTSC
V_REV
H_REV
COMTST
P_XHD
W_MSK
FRPV
FRPT
② PD-170 BOARD (1/2)
PANEL_COM
HSY
L901 10uH
L902 10uH
L903 10uH
L905 6.8uH
C902 3.3u 20V
C905 0.1u
C901 XX 6.3V
C904 0.1u
C903 0.1u
C906 0.1u
C907 0.001u
C908 82p
C909 0.1u
C910 XX
C911 560p
C912 82p
C913 1u
C914 6.8u 16V
C915 0.01u
C916 1u 35V
C917 0.1u
C918 1u
D902 1SV288(TPH3)
D903 MA8047-H-TX
R904 47k
R905 47k
R908 680k
R909 120k
R910 100k
R911 10k
R912 1M
R913 0
R914 1M
R915 22k
R916 68k
R917 68k
R918 47k
R919 XX ±0.5%
R920 56k ±0.5%
R921 4700
R922 4700
R925 100k
R926 33k
R928 100k
R929 100k
R932 100k
R933 33k
R934 0
R935 33k ±0.5%
R936 22k ±0.5%
R937 33k ±0.5%
R938 22k ±0.5%
R960 47
R961 47
R962 47
Q901 2SD2216J-QR(K8).SO
Q902 2SB1462J-QR(K8).SO
Q903 2SD2216J-QR(K8).SO
Q904 2SB1462J-QR(K8).SO
VB VG VR
VCO
COM-O
V-COM
PANEL_COM
⑨ ⑩ ⑪
2.6 2.5 2.5 -10.2 13.2 1.4 0.4 0.4 1.4 13.2 0.9 1.9 -10.2 13.2 1.4 -10.2
4.9 2.8 4.9 2.5 4.9 4.9 4.9 2.4 2.3
2.6 2.8 0 4.9 2.9 4.9 2.9 0 4.9
2.3 0.6 2.5 0 4.9 2.5 4.9 4.9 0 4.9 3.5
2.5 2.5 4.7 4.6 0 2.5 2.5
SIGNAL PATH
VIDEO SIGNAL
CHROMA
PB
CN901 24P
24 CLD
23 SPD
22 CTR
21 EX3
20 EX2
19 VB12
18 RES
17 TST
16 VR
15 VG
14 VB
13 GND
12 VSH
11 COM
10 VGL
9 VSS
8 MO2
7 MO1
6 GPCK
5 SPS
4 CLS
3 VCC
2 VSH
1 VGH
LCD901 LCD UNIT
05

JK-216 (VIDEO/AUDIO IN/OUT) • See page 4-147 for JK-216 printed wiring board.


JK-216 BOARD
VIDEO/AUDIO IN/OUT
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J K
J101 S VIDEO IN OUT
IN VIDEO OUT
CH-1 AUDIO IN CH-3
CH-2 CH-4
J102 XX
COMPONENT Y R-Y B-Y
J103 J104 J105 IN OUT
J106 MONITOR VIDEO AUDIO
J107 IN OUT TC
D101 MAZ9120D0LS0-TX/L
D102 MAZ9120D0LS0-TX/L
D103 MAZ9120D0LS0-TX/L
D104 XX D105 XX D106 XX D107 XX
D108 MAZ9120D0LS0-TX/L
D109 MAZ9120D0LS0-TX/L
D110 MAZ9120D0LS0-TX/L
D111 MAZ9120D0LS0-TX/L
D112 MAZ9120D0LS0-TX/L
D113 MAZ9120D0LS0-TX/L
D114 MAZ9120D0LS0-TX/L
D115 MAZ9120D0LS0-TX/L
D116 MAZ9120D0LS0-TX/L
D117 MAZ9120D0LS0-TX/L
D118 MAZ9120D0LS0-TX/L
D119 MA3200WA-TX D120 MA3200WA-TX
FB101 FB102 FB103 FB104 FB105 FB106 FB107 FB108 FB109 FB110 FB111 FB112 FB113 FB114 FB115 FB116 FB117 FB118 FB119 FB120
JS101 XX JS102 XX JS103 XX JS104 XX
IC101 NJM4580E(TE2)
IC102 NJM4580E(TE2)
S101 INPUT LEVEL +4 -2 -10
C101 2.2u 10V C102 2.2u 10V C103 2.2u 10V C104 2.2u 10V
C105 47p C106 47p C107 47p C108 47p
C109 1u C110 1u C111 1u C112 1u C113 1u C114 1u C115 1u C116 1u
L101 10uH L102 10uH
R101 8200 R102 8200 R103 8200 R104 8200
R105 39k R106 39k R107 39k R108 39k
R109 3300 R110 3300 R111 3300 R112 3300
R113 2200 R114 2200 R115 3300 R116 3300 R117 3300 R118 3300
R119 2200 R120 2200 R121 8200 R122 8200 R123 8200 R124 8200
R125 1800 R126 1800 R127 1800 R128 1800
R129 100 R130 100 R131 100 R132 100
R133 150 R134 150 R135 150 R136 150 R137 150 R138 150
R139 1500 R140 1500 R141 1500 R142 1500 R143 1500 R144 1500 R145 1500 R146 1500
R147 150 R148 150 R149 150 R150 150
CN103 12P
12 MONITOR_OUT
11 MONITOR_OUT_GND
10 B-Y_OUT
9 B-Y_OUT_GND
8 R-Y_OUT
7 R-Y_OUT_GND
6 Y_OUT
5 Y_OUT_GND
4 S_Y_OUT
3 S_Y_OUT_GND
2 S_C_OUT
1 S_C_OUT_GND
VD-032 BOARD (4/16) CN201 THROUGH THE VJ-109 HARNESS (SEE PAGE 4-63)
CN104 8P
1 V_OUT_GND
2 V_OUT
3 B-Y_IN_GND
4 B-Y_IN
5 R-Y_IN_GND
6 R-Y_IN
7 Y_IN_GND
8 Y_IN
VD-032 BOARD (4/16) CN202 THROUGH THE VJ-110 HARNESS (SEE PAGE 4-63)
CN105 6P
1 S_Y_IN_GND
2 S_Y_IN
3 S_C_IN_GND
4 S_C_IN
5 V_IN_GND
6 V_IN
VD-032 BOARD (4/16) CN203 THROUGH THE VJ-111 HARNESS (SEE PAGE 4-63)
CN102 15P
1 CH1_IN
2 GND
3 CH2_IN
4 GND
5 CH3_IN
6 GND
7 CH4_IN
8 GND
9 A.MONITOR_OUT
10 A.+5V
11 A.-5V
12 TC_GND_IN
13 TC_IN
14 TC_GND_OUT
15 TC_OUT
VD-032 BOARD (11/16) CN1627 THROUGH THE FVJ-017 FLAT CABLE (SEE PAGE 4-77)
05

SIGNAL PATH

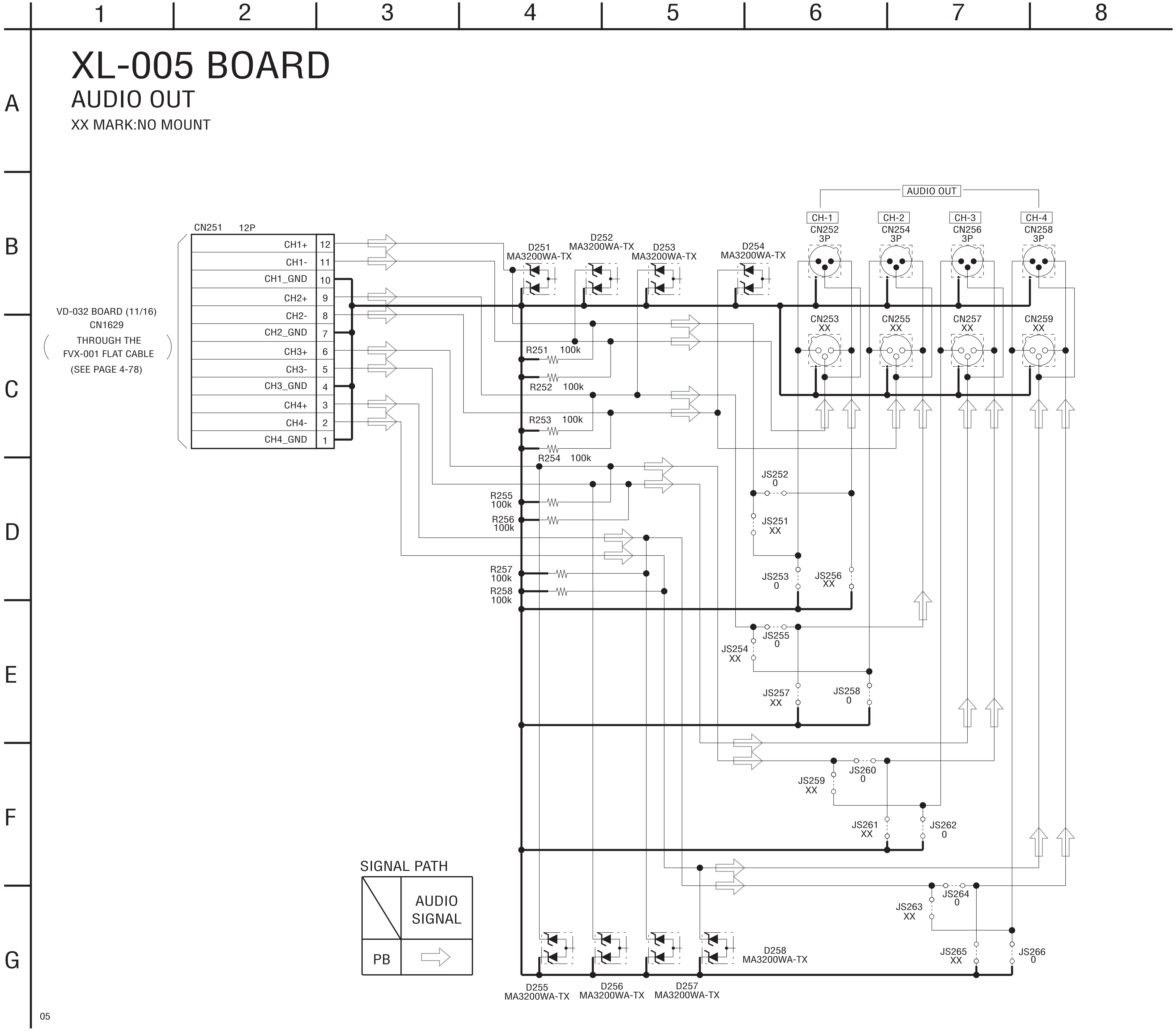
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡➡	➡➡➡	➡
PB	⇨	⇨⇨	⇨⇨⇨	⇨

XL-005 (AUDIO OUT) **• See page 4-151 for XL-005 printed wiring board.**

XL-005 BOARD

AUDIO OUT

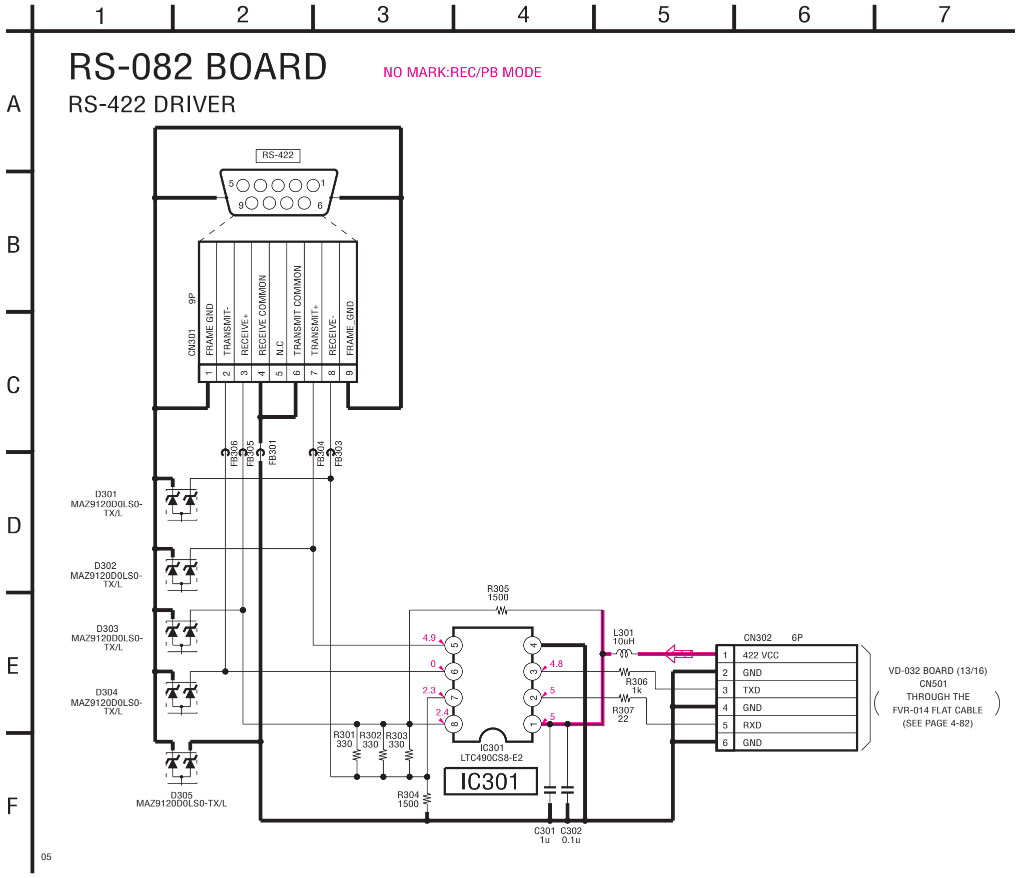
XX MARK:NO MOUNT

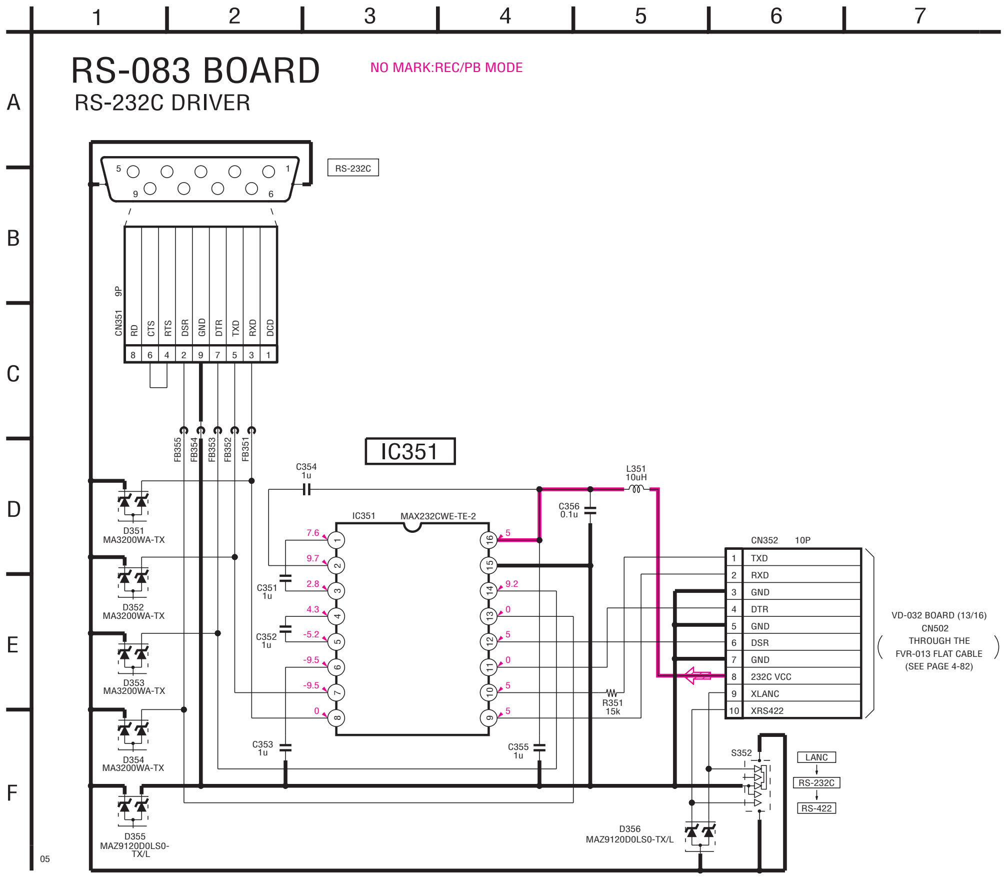

1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
CN251 12P
CH1+ 12
CH1- 11
CH1_GND 10
CH2+ 9
CH2- 8
CH2_GND 7
CH3+ 6
CH3- 5
CH3_GND 4
CH4+ 3
CH4- 2
CH4_GND 1
VD-032 BOARD (11/16)
CN1629
THROUGH THE
FVX-001 FLAT CABLE
(SEE PAGE 4-78)
D251 MA3200WA-TX
D252 MA3200WA-TX
D253 MA3200WA-TX
D254 MA3200WA-TX
AUDIO OUT
CH-1 CN252 3P
CH-2 CN254 3P
CH-3 CN256 3P
CH-4 CN258 3P
CN253 XX
CN255 XX
CN257 XX
CN259 XX
R251 100k
R252 100k
R253 100k
R254 100k
R255 100k
R256 100k
R257 100k
R258 100k
JS252 0
JS251 XX
JS253 0
JS256 XX
JS255 0
JS254 XX
JS257 XX
JS258 0
JS260 0
JS259 XX
JS261 XX
JS262 0
JS264 0
JS263 XX
JS265 XX
JS266 0
D258 MA3200WA-TX
D255 MA3200WA-TX
D256 MA3200WA-TX
D257 MA3200WA-TX
SIGNAL PATH
AUDIO SIGNAL
PB

05

RS-082 (RS-422 DRIVER)/RS-083 (RS-232C DRIVER)

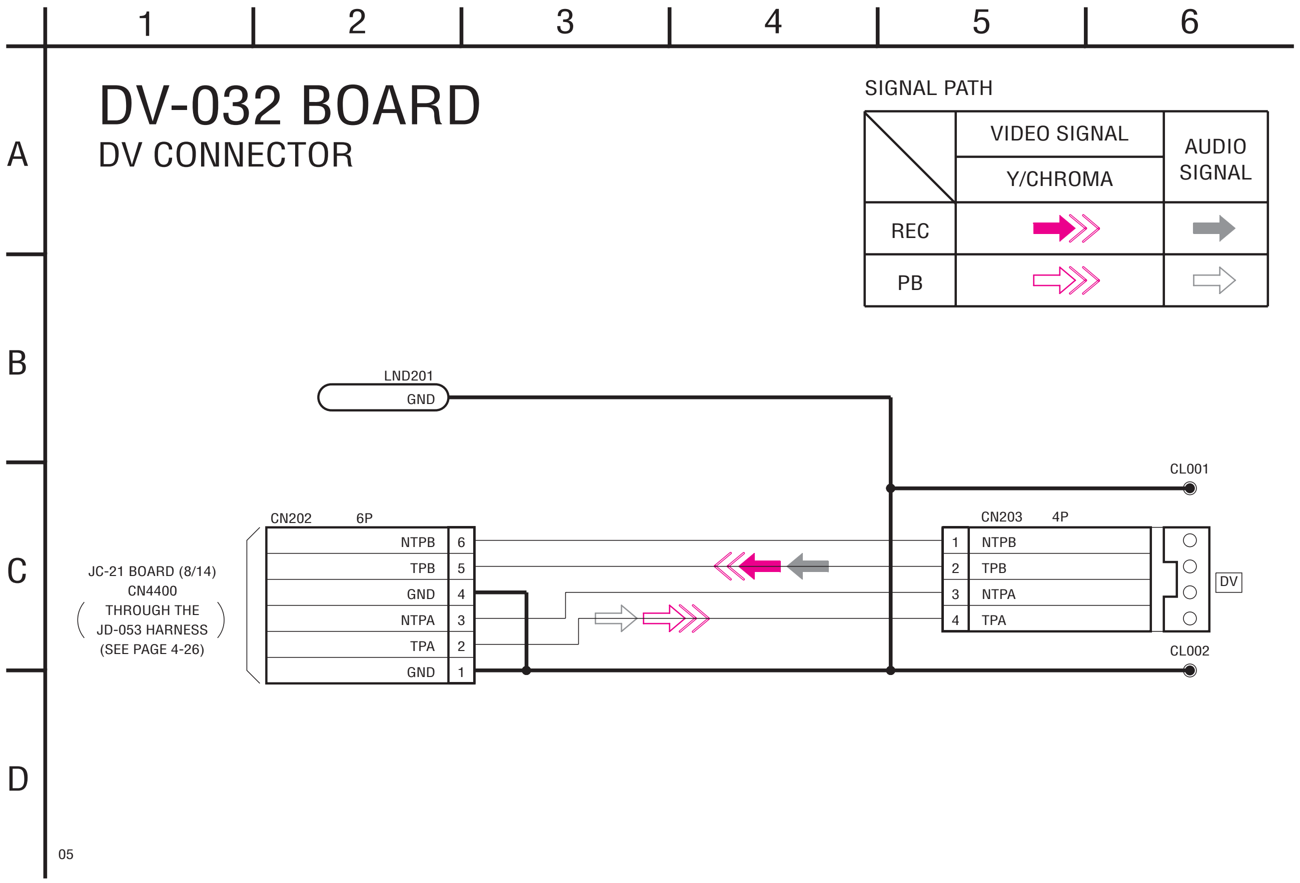
- See page 4-153 for RS-082/RS-083 printed wiring board.

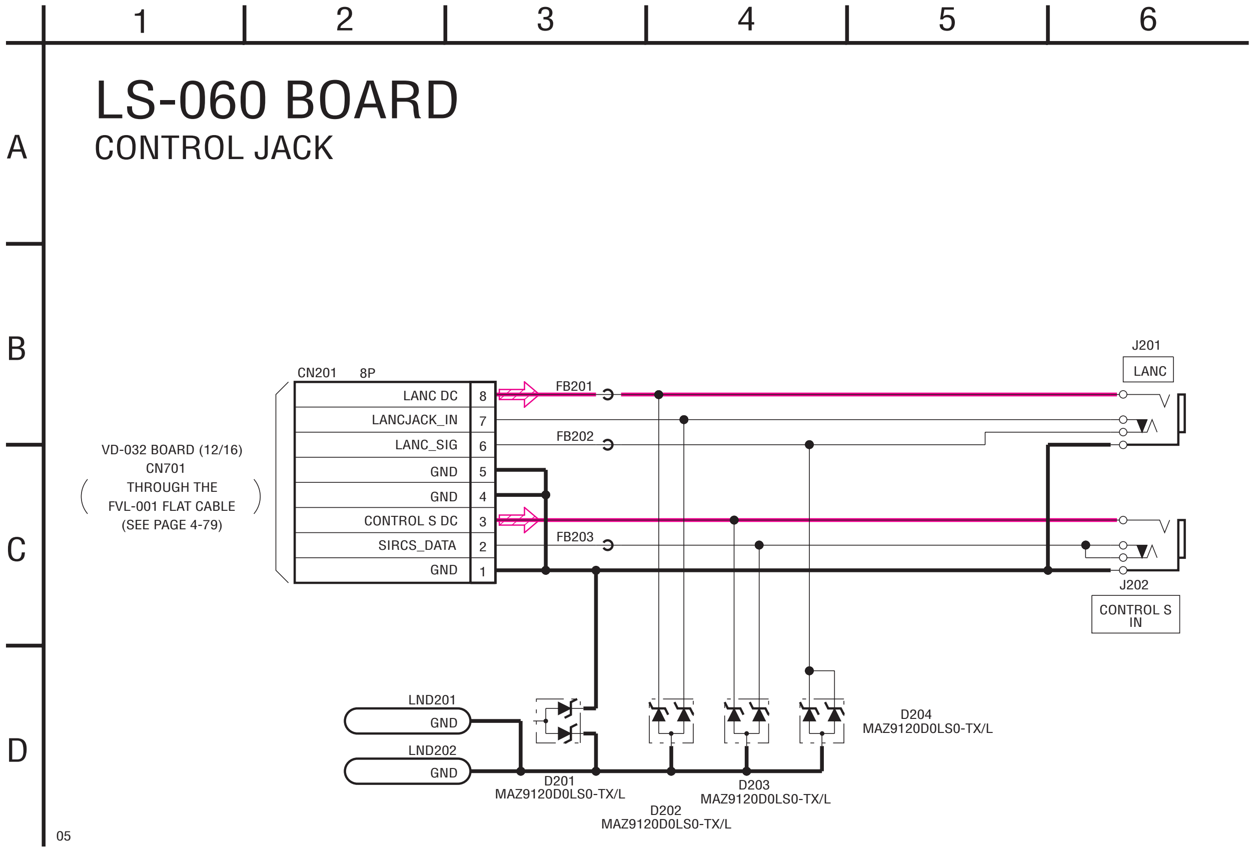

1
2
3
4
5
6
7
A
B
C
D
E
F
RS-082 BOARD
RS-422 DRIVER
NO MARK:REC/PB MODE
RS-422
CN301 9P
FRAME GND
TRANSMIT-
RECEIVE+
RECEIVE COMMON
N.C
TRANSMIT COMMON
TRANSMIT+
RECEIVE-
FRAME_GND
FB306
FB305
FB301
FB304
FB303
D301
MAZ9120D0LS0-TX/L
D302
MAZ9120D0LS0-TX/L
D303
MAZ9120D0LS0-TX/L
D304
MAZ9120D0LS0-TX/L
D305
MAZ9120D0LS0-TX/L
R305
1500
L301
10uH
R306
1k
R307
22
R301 330
R302 330
R303 330
R304 1500
IC301
LTC490CS8-E2
IC301
C301 1u
C302 0.1u
4.9
0
2.3
2.4
4.8
5
5
CN302 6P
422 VCC
GND
TXD
GND
RXD
GND
VD-032 BOARD (13/16)
CN501
THROUGH THE
FVR-014 FLAT CABLE
(SEE PAGE 4-82)
05


1
2
3
4
5
6
7
A
B
C
D
E
F
RS-083 BOARD
RS-232C DRIVER
NO MARK:REC/PB MODE
RS-232C
CN351 9P
RD
CTS
RTS
DSR
GND
DTR
TXD
RXD
DCD
FB355
FB354
FB353
FB352
FB351
IC351
C354
1u
L351
10uH
C356
0.1u
IC351 MAX232CWE-TE-2
7.6
9.7
2.8
4.3
-5.2
-9.5
-9.5
0
5
9.2
0
5
0
5
5
C351
1u
C352
1u
C353
1u
C355
1u
R351
15k
CN352 10P
TXD
RXD
GND
DTR
GND
DSR
GND
232C VCC
XLANC
XRS422
VD-032 BOARD (13/16)
CN502
THROUGH THE
FVR-013 FLAT CABLE
(SEE PAGE 4-82)
S352
LANC
RS-232C
RS-422
D351
MA3200WA-TX
D352
MA3200WA-TX
D353
MA3200WA-TX
D354
MA3200WA-TX
D355
MAZ9120D0LS0-TX/L
D356
MAZ9120D0LS0-TX/L
05

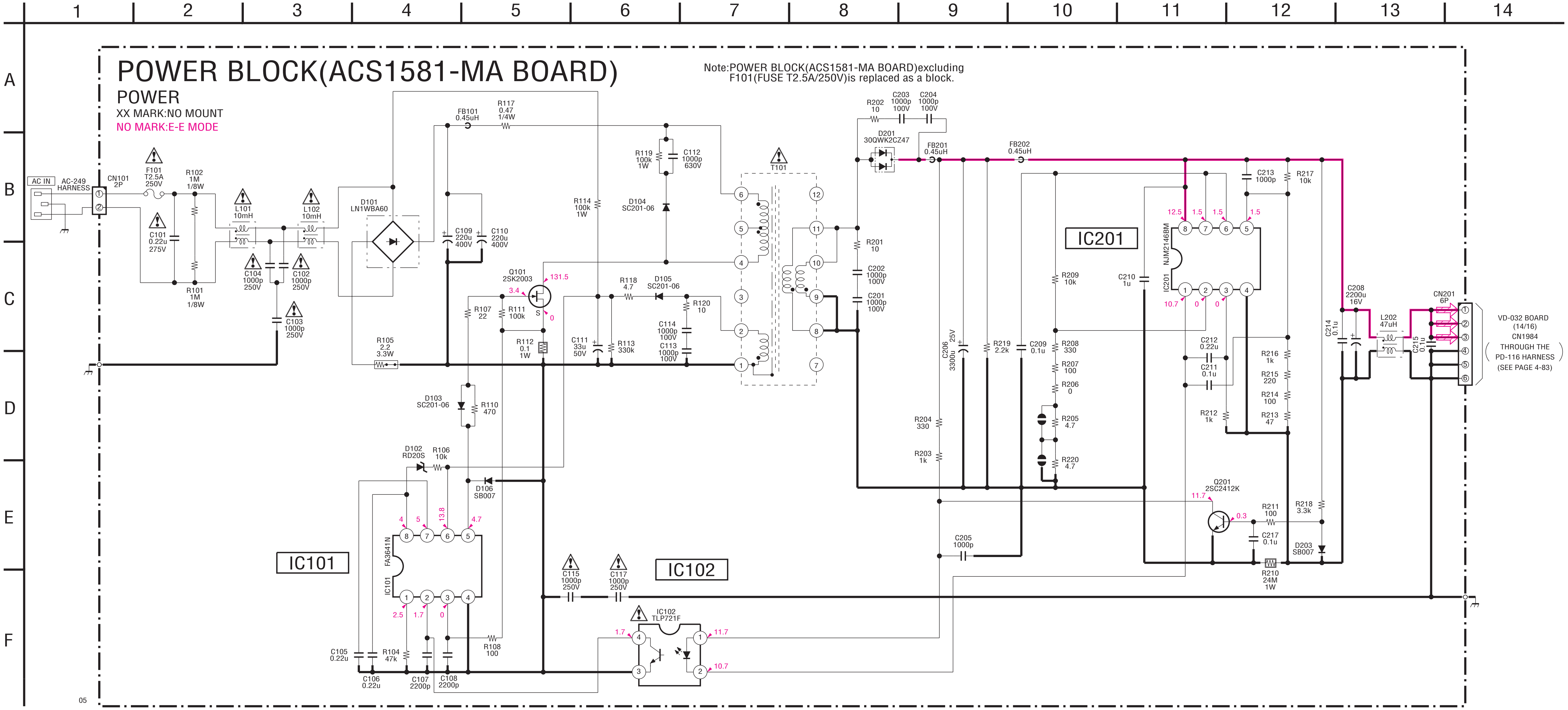
DV-032 (DV CONNECTOR)/LS-060 (CONTROL JACK)

- See page 4-155, 156 for DV-032/LS-060 printed wiring board.


1
2
3
4
5
6
A
B
C
D
DV-032 BOARD
DV CONNECTOR
SIGNAL PATH
VIDEO SIGNAL
Y/CHROMA
AUDIO SIGNAL
REC
PB
LND201
GND
CL001
CN202 6P
NTPB
TPB
GND
NTPA
TPA
GND
JC-21 BOARD (8/14)
CN4400
THROUGH THE
JD-053 HARNESS
(SEE PAGE 4-26)
CN203 4P
NTPB
TPB
NTPA
TPA
DV
CL002
05


1
2
3
4
5
6
A
B
C
D
LS-060 BOARD
CONTROL JACK
CN201 8P
LANC DC
LANCJACK_IN
LANC_SIG
GND
GND
CONTROL S DC
SIRCS_DATA
GND
VD-032 BOARD (12/16)
CN701
THROUGH THE
FVL-001 FLAT CABLE
(SEE PAGE 4-79)
FB201
FB202
FB203
J201
LANC
J202
CONTROL S IN
LND201
GND
LND202
GND
D201
MAZ9120D0LS0-TX/L
D202
MAZ9120D0LS0-TX/L
D203
MAZ9120D0LS0-TX/L
D204
MAZ9120D0LS0-TX/L
05

ACS1581-MA (POWER) • See page 4-157 for ACS1581-MA printed wiring board.

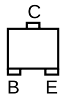

1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
POWER BLOCK(ACS1581-MA BOARD)
POWER
XX MARK:NO MOUNT
NO MARK:E-E MODE
Note:POWER BLOCK(ACS1581-MA BOARD)excluding
F101(FUSE T2.5A/250V)is replaced as a block.
AC IN
AC-249 HARNESS
CN101 2P
F101 T2.5A 250V
R102 1M 1/8W
C101 0.22u 275V
R101 1M 1/8W
L101 10mH
L102 10mH
C104 1000p 250V
C102 1000p 250V
C103 1000p 250V
D101 LN1WBA60
R105 2.2 3.3W
FB101 0.45uH
R117 0.47 1/4W
C109 220u 400V
C110 220u 400V
Q101 2SK2003
131.5
3.4
0
S
R107 22
R111 100k
R112 0.1 1W
R114 100k 1W
R119 100k 1W
C112 1000p 630V
D104 SC201-06
R118 4.7
D105 SC201-06
R120 10
C111 33u 50V
R113 330k
C114 1000p 100V
C113 1000p 100V
T101
D103 SC201-06
R110 470
D102 RD20S
R106 10k
D106 SB007
IC101
IC101 FA3641N
4
5
13.8
4.7
2.5
1.7
0
C105 0.22u
C106 0.22u
R104 47k
C107 2200p
C108 2200p
R108 100
C115 1000p 250V
C117 1000p 250V
IC102
IC102 TLP721F
1.7
11.7
10.7
R202 10
C203 1000p 100V
C204 1000p 100V
D201 30QWK2CZ47
FB201 0.45uH
FB202 0.45uH
R201 10
C202 1000p 100V
C201 1000p 100V
C206 3300u 25V
R204 330
R203 1k
R219 2.2k
C209 0.1u
R209 10k
R208 330
R207 100
R206 0
R205 4.7
R220 4.7
C205 1000p
IC201
IC201 NJM2146BM
C210 1u
12.5
1.5
1.5
1.5
10.7
0
0
C213 1000p
R217 10k
C212 0.22u
C211 0.1u
R212 1k
R216 1k
R215 220
R214 100
R213 47
Q201 2SC2412K
11.7
0.3
R211 100
R218 3.3k
C217 0.1u
D203 SB007
R210 24M 1W
C208 2200u 16V
C214 0.1u
L202 47uH
C215 0.1u
CN201 6P
VD-032 BOARD (14/16) CN1984 THROUGH THE PD-116 HARNESS (SEE PAGE 4-83)
05

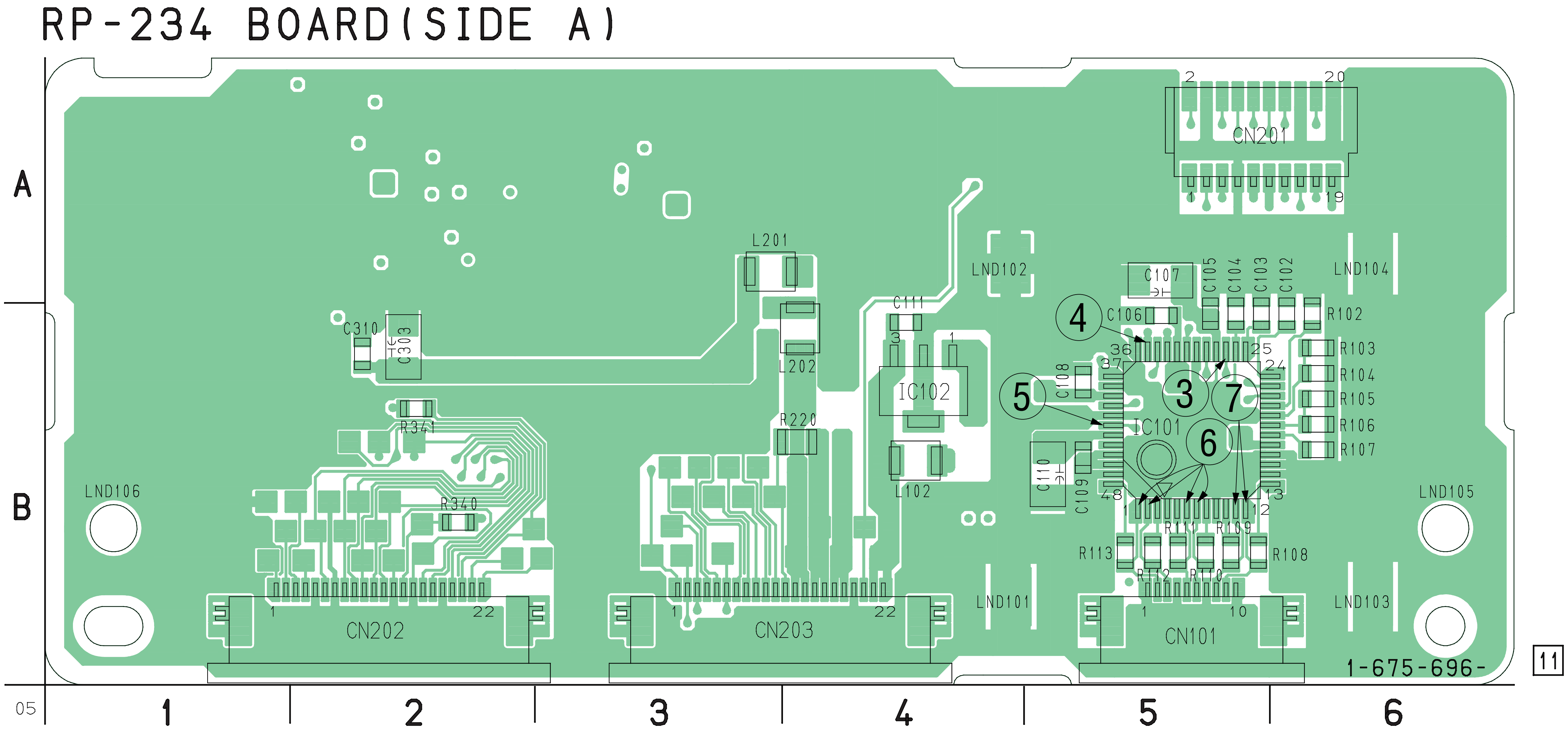
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

4-3. PRINTED WIRING BOARDS

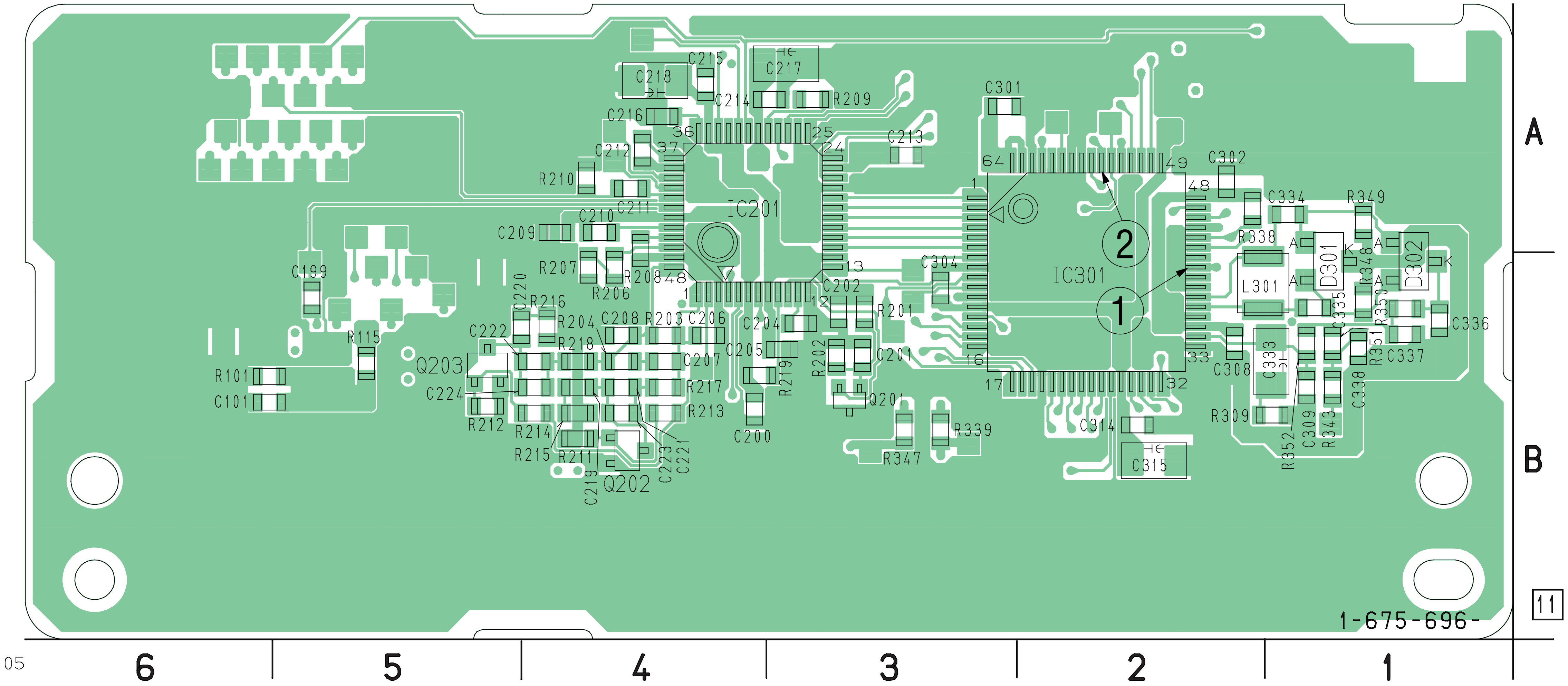
RP-234 (REC/PB AMP)

- **For Printed Wiring Board.**
- RP-234 board is six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-179 for printed parts location.
- Chip transistor



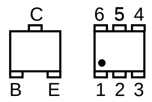

RP-234 BOARD(SIDE A)
A
B
1
2
3
4
5
6
05
CN201
2
20
1
19
L201
L202
C111
3
1
IC102
R220
L102
LND102
C107
C106
C105
C104
C103
C102
LND104
R102
R103
R104
R105
R106
R107
4
5
3
7
6
36
37
25
24
48
1
13
12
IC101
C108
C110
C109
R111
R109
R112
R110
R113
R108
C310
C303
R341
R340
LND106
LND105
LND101
LND103
CN202
1
22
CN203
1
22
CN101
1
10
1-675-696-
11

RP-234 BOARD(SIDE B)

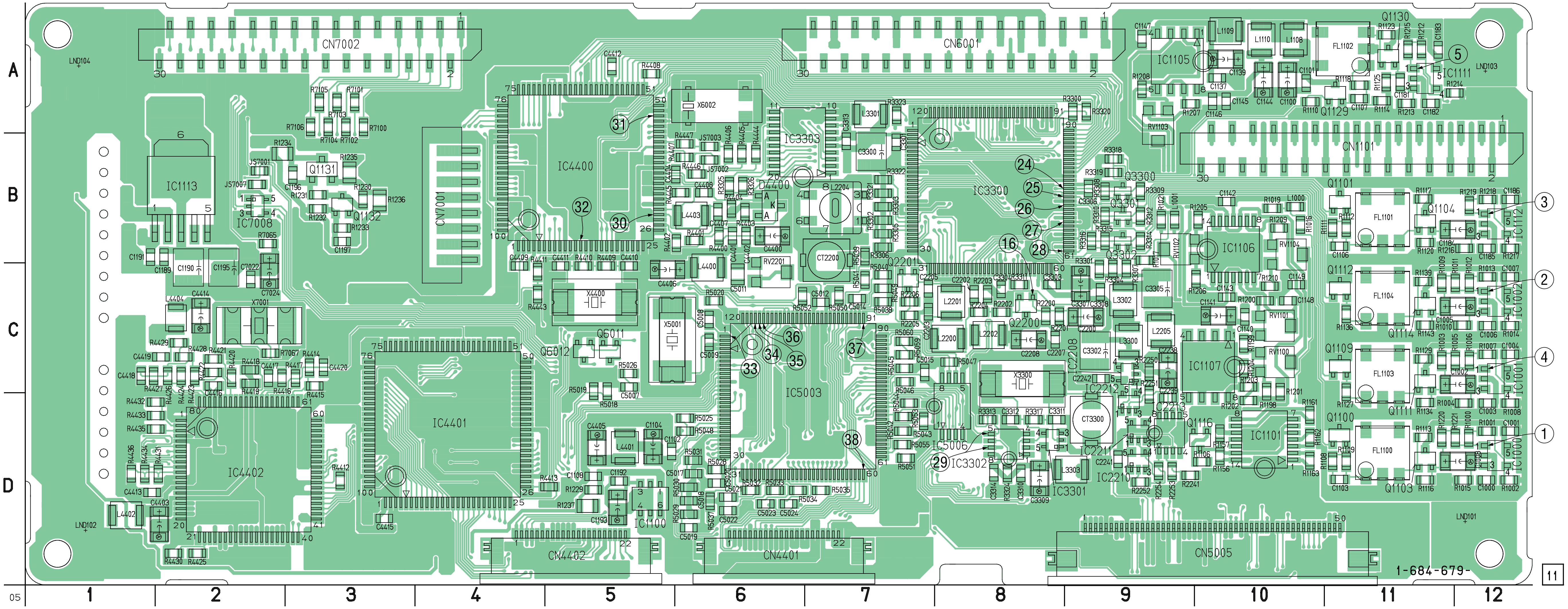

C215
C217
C218
C214
R209
C301
C216
C212
C213
R210
C302
C211
IC201
C334
R349
C210
C209
C338
D301
D302
L301
R348
C199
R207
R208
R206
C304
IC301
C220
R216
C202
R201
C335
R350
C336
C222
R204
C208
R203
C206
C204
R351
C337
R115
R218
C205
C201
C308
C333
Q203
C207
R219
R202
R101
C224
R217
C101
R212
R213
Q201
R309
R214
C200
C314
R339
C309
R343
R352
R215
R211
R347
C315
C223
C221
C219
Q202
A
B
11
1-675-696-
05
6
5
4
3
2
1

JC-21 (VIDEO PB AMP, VIDEO A/D CONVERTER, CHROMA MIX, AFC, VFD, SFD, TFD, DV INTERFACE, MECHANISM CONTROL, AUDIO, POWER SUPPLY)

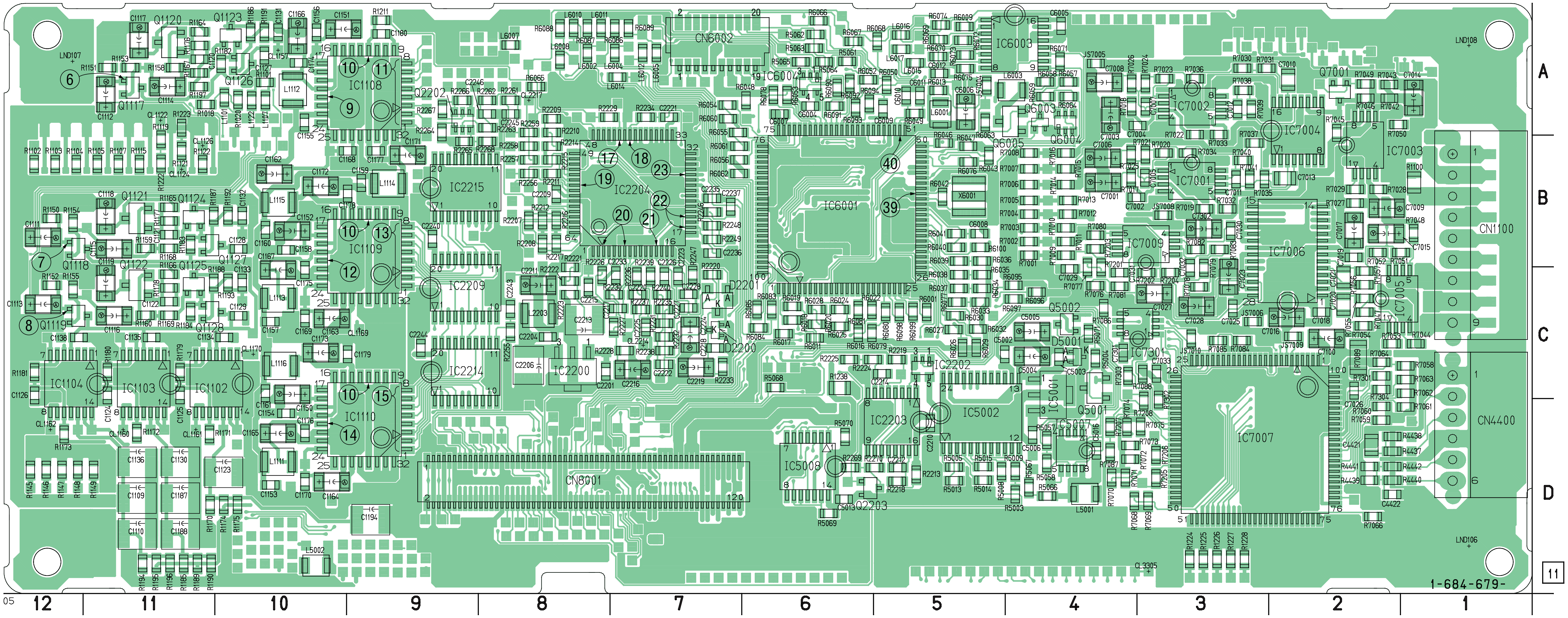
- **For Printed Wiring Board.**
- JC-21 board is six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-179 for printed parts location.
- Chip transistor



JC-21 BOARD(SIDE A)

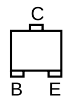

A
B
C
D
1
2
3
4
5
6
7
8
9
10
11
12
05
CN7002
CN6001
CN1101
CN7001
CN4402
CN4401
CN5005
IC1113
IC7008
IC4400
IC4401
IC4402
IC5003
IC3303
IC3300
IC3302
IC5006
IC1100
IC1105
IC1106
IC1107
IC1101
IC1111
IC1112
IC1102
IC1001
IC1000
IC2210
IC2211
IC2212
IC2213
Q1131
Q1132
Q6011
Q6012
Q3300
Q3301
Q3302
Q2200
Q2201
Q1130
Q1129
Q1101
Q1104
Q1112
Q1114
Q1109
Q1111
Q1100
Q1103
Q1116
X4400
X5001
X6002
X3300
X7001
D4400
CT2200
CT3300
FL1100
FL1101
FL1102
FL1103
FL1104
LND101
LND102
LND103
LND104
1-684-679-
11
①
②
③
④
⑤
⑯
㉔
㉕
㉖
㉗
㉘
㉙
㉚
㉛
㉜
㉝
㉞
㉟
㊱
㊲
㊳

JC-21 BOARD(SIDE B)

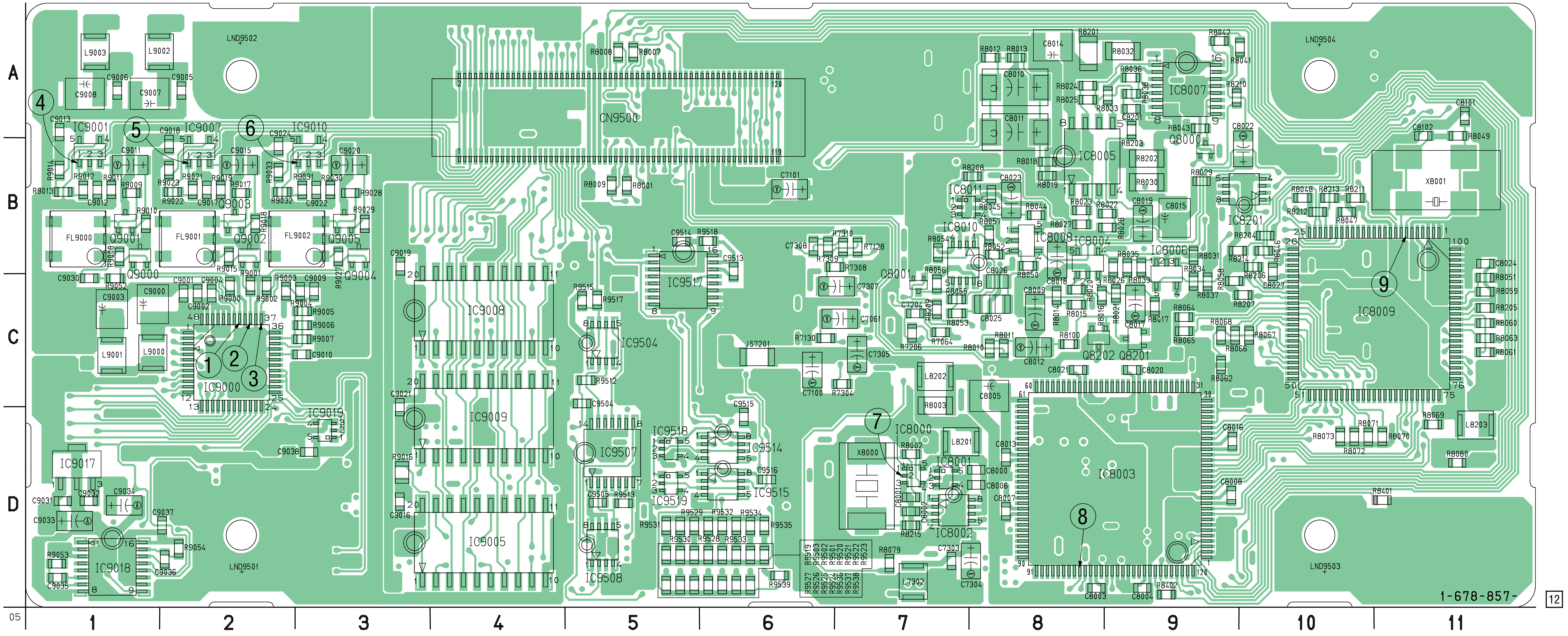

A
B
C
D
12
11
10
9
8
7
6
5
4
3
2
1
05
CN1100
CN4400
CN6002
CN8001
IC6001
IC7007
IC2204
IC5002
IC2203
IC5008
1-684-679-
11

DI-73 (VIDEO D/A CONVERTER, SYNC SHIFTER, AUDIO A/D, D/A CONVERTER, AUDIO DSP, TIME CODE IN/OUT)

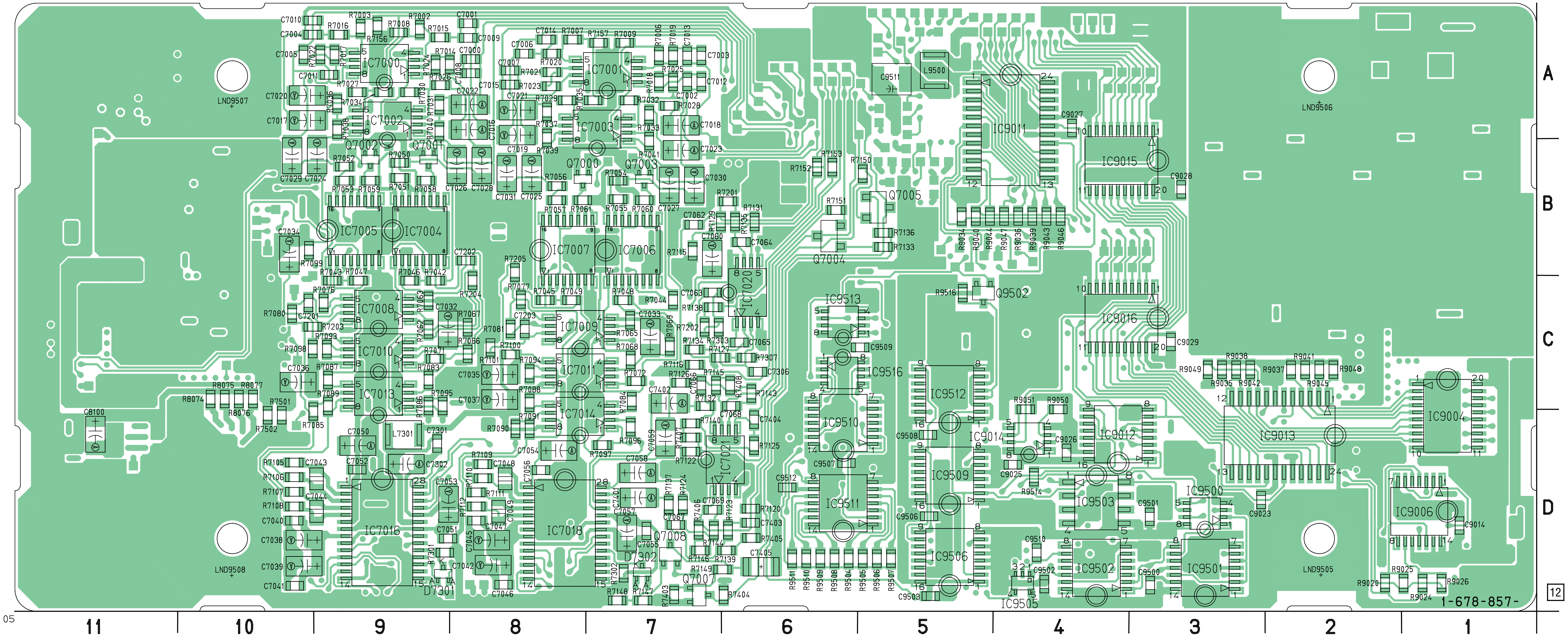
- **For Printed Wiring Board.**
- DI-73 board is four-layer print board. However, the patterns of layers 2 to 3 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-179 for printed parts location.
- Chip transistor



DI-73 BOARD(SIDE A)

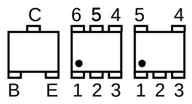

A
B
C
D
1
2
3
4
5
6
7
8
9
10
11
05
12
1-678-857-
LND9502
LND9504
LND9501
LND9503
CN9500
IC9001
IC9007
IC9010
IC9000
IC9017
IC9018
IC9019
IC9008
IC9009
IC9005
IC9504
IC9507
IC9508
IC9517
IC9518
IC9519
IC9514
IC9515
IC8000
IC8001
IC8002
IC8003
IC8004
IC8005
IC8006
IC8007
IC8008
IC8009
IC8010
IC8011
IC8201
Q9000
Q9001
Q9002
Q9003
Q9004
Q9005
Q8000
Q8001
Q8201
Q8202
FL9000
FL9001
FL9002
L9000
L9001
L9002
L9003
L8201
L8202
L8203
L7302
X8000
X8001
J57201
①
②
③
④
⑤
⑥
⑦
⑧
⑨

DI-73 BOARD(SIDE B)


A
B
C
D
11
10
9
8
7
6
5
4
3
2
1
05
IC7000
IC7001
IC7002
IC7003
IC7004
IC7005
IC7006
IC7007
IC7008
IC7009
IC7010
IC7011
IC7013
IC7014
IC7018
IC7020
IC7021
Q7000
Q7001
Q7002
Q7003
Q7004
Q7005
Q7007
Q7008
D7301
D7302
L7301
IC9011
IC9015
IC9016
IC9013
IC9004
IC9006
IC9012
IC9014
IC9500
IC9501
IC9502
IC9503
IC9505
IC9506
IC9509
IC9510
IC9511
IC9512
IC9513
IC9516
Q9502
L9500
LND9505
LND9506
LND9507
LND9508
1-678-857-
12

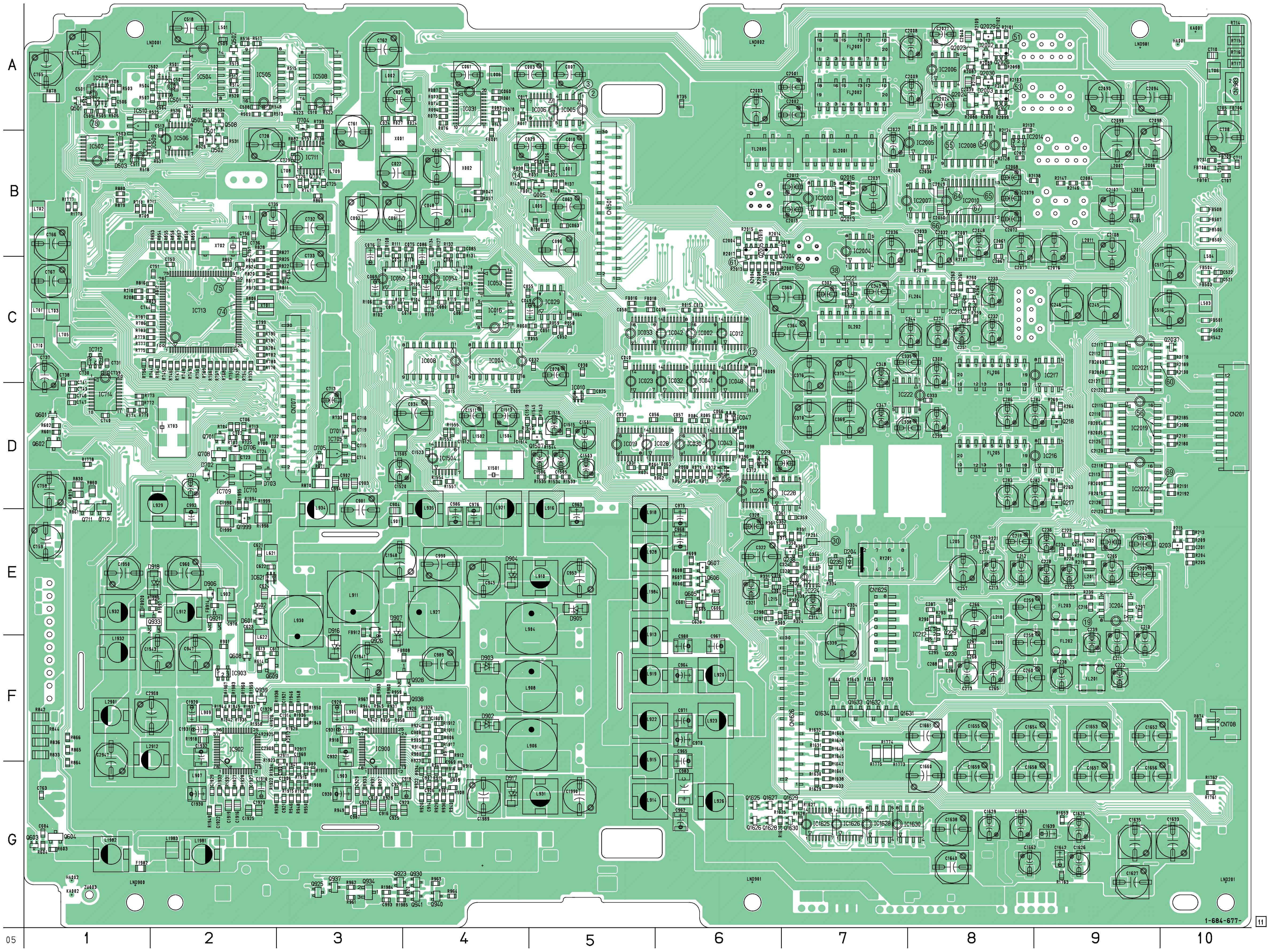
VD-032 (SYNC GENERATOR, VIDEO IN, UVIC, VIDEO OUT, AUDIO, HI CONTROL, RS232C/422 CONTROL, DC IN, DC/DC CONVERTER)

- **For Printed Wiring Board.**
- LF :Uses unleaded solder.
- VD-032 board is six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-180 for printed parts location.
- Chip transistor



C
B E
6 5 4
1 2 3
5 4
1 2 3

VD-032 BOARD(SIDE A)

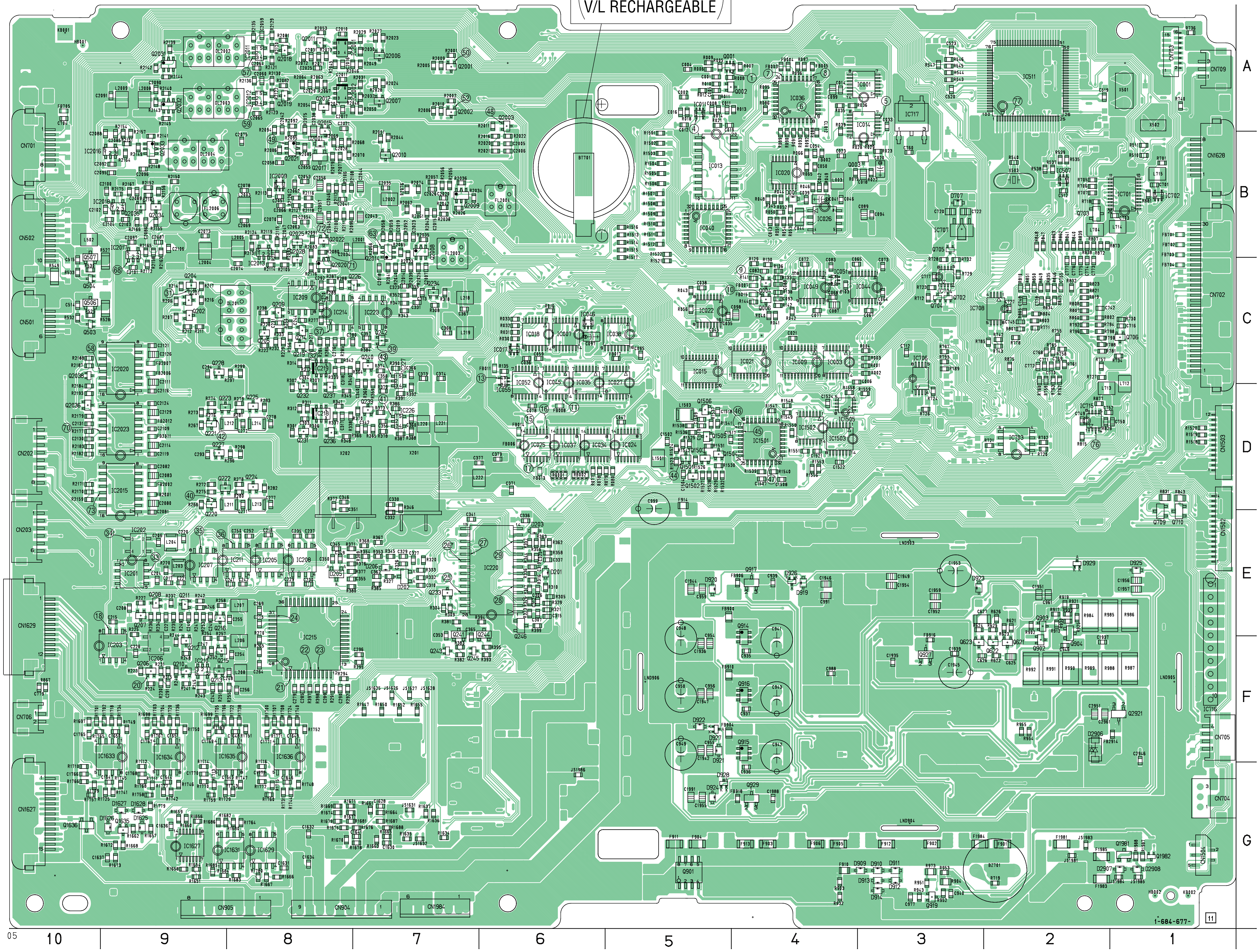


A
B
C
D
E
F
G
05
1
2
3
4
5
6
7
8
9
10
1-684-677-
11

CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or eqivalent type.

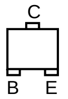
VD-032 BOARD(SIDE B)

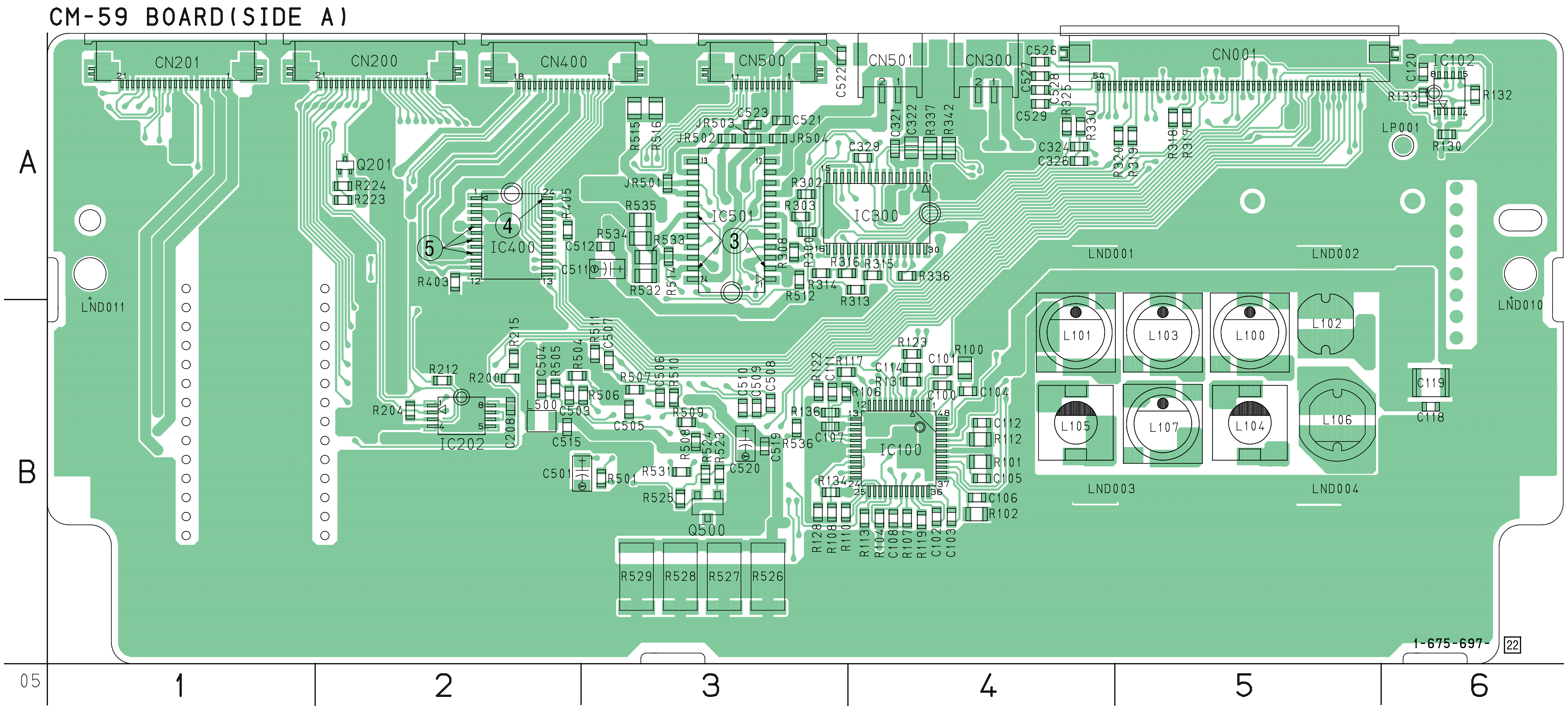
BT701
BATTERY,
V/L RECHARGEABLE


A
B
C
D
E
F
G
10
9
8
7
6
5
4
3
2
1
05
CN701
CN502
CN501
CN202
CN203
CN1629
CN706
CN1627
CN905
CN904
CN1984
CN703
CN709
CN1628
CN702
CN1503
CN1502
CN705
CN704
CN1504
IC511
IC717
IC001
IC013
IC014
IC020
IC026
IC036
IC040
IC701
IC708
IC703
IC2016
IC2015
IC2020
IC2023
IC209
IC214
IC223
IC215
IC220
IC201
IC203
IC207
IC205
IC208
IC1633
IC1634
IC1635
IC1636
IC1627
IC1631
IC1629
IC1501
IC1502
IC1503
IC1505
BT701
X201
X202
X501
X502
1-684-677-
11

CM-59 (DC/DC CONVERTER, MOTOR DRIVE)

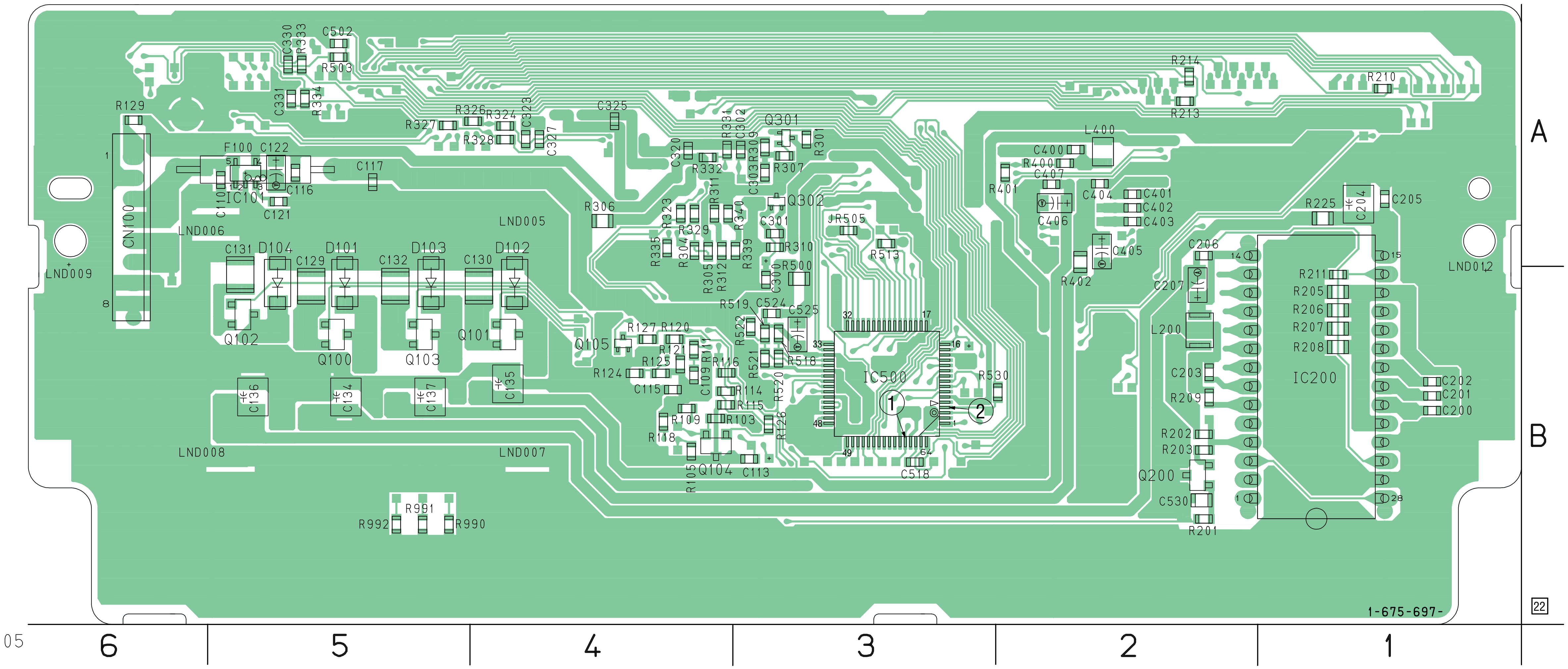
- **For Printed Wiring Board.**
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-180 for printed parts location.
- Chip transistor





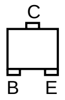
CM-59 BOARD(SIDE A)
CN201
CN200
CN400
CN500
CN501
CN300
CN001
IC102
IC400
IC501
IC300
IC202
IC100
Q201
Q500
L101
L103
L100
L102
L105
L107
L104
L106
LND001
LND002
LND003
LND004
LND010
LND011
LP001
R529
R528
R527
R526
1-675-697-
22
A
B
05
1
2
3
4
5
6

CM-59 BOARD(SIDE B)

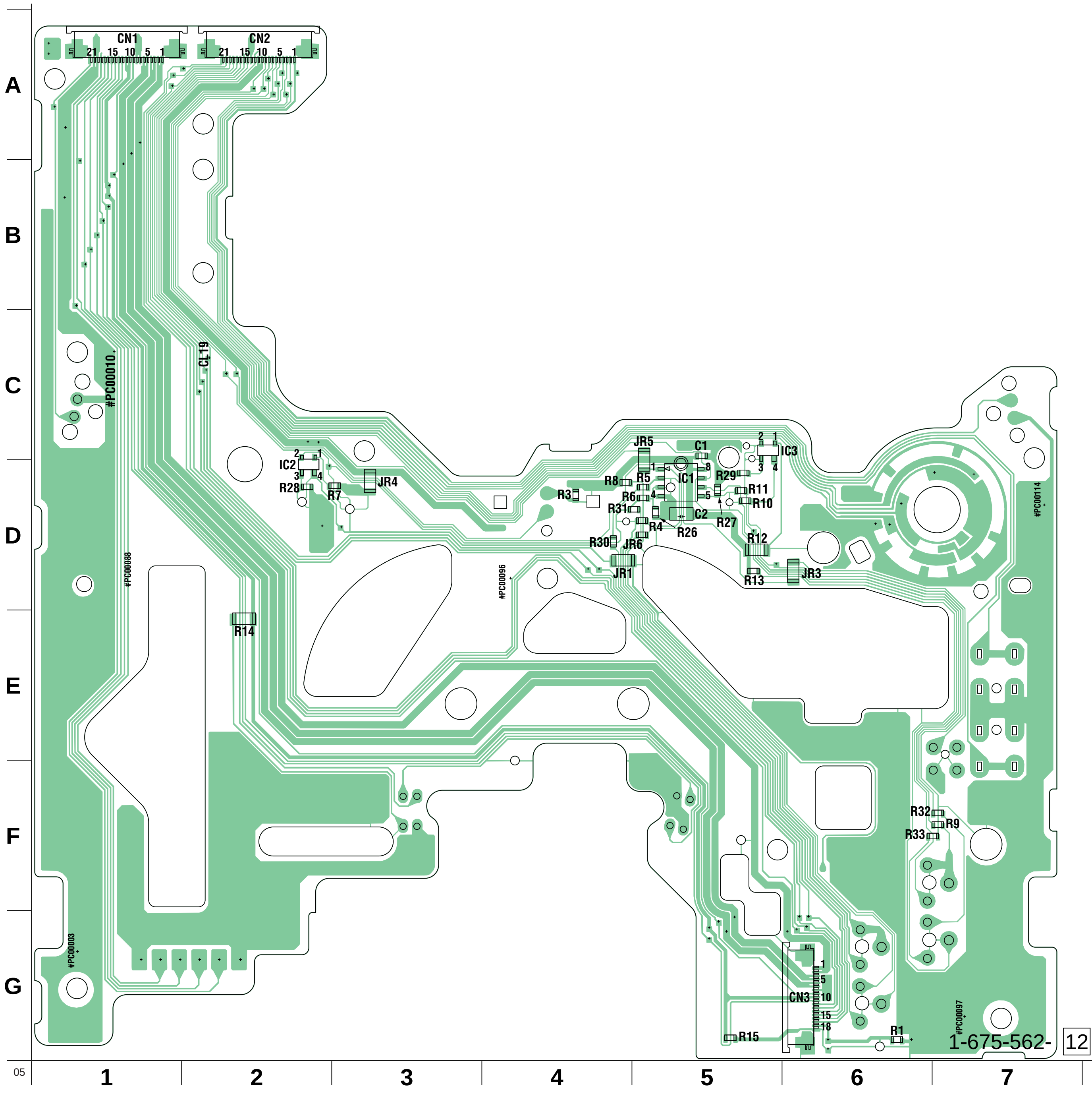

C330
R333
C502
R503
C331
R334
R129
R327
R326
R324
R328
C323
C327
C325
R214
R213
R210
Q301
R331
C302
R309
C303
R307
R301
C320
R332
R311
L400
C400
R400
C407
R401
C404
C401
C402
C403
C406
C405
R402
F100
C122
C117
C116
C110
IC101
C121
CN100
LND006
LND009
LND005
R306
Q302
R323
R329
R335
R304
R305
R312
R310
R339
C301
JR505
R513
R500
C304
R519
C524
C525
R522
R521
R518
R520
IC500
R530
R225
C204
C205
C206
C207
L200
R211
R205
R206
R207
R208
IC200
C203
R209
R202
R203
Q200
C530
R201
C202
C201
C200
LND012
C131
D104
C129
D101
C132
D103
C130
D102
Q102
Q100
Q103
Q101
Q105
R127
R120
R121
R125
R116
R111
R124
C115
C109
R114
R115
R109
R103
R126
R118
R105
Q104
C113
C518
C136
C134
C137
C135
LND008
LND007
R991
R992
R990
1-675-697-
22
05
A
B
6
5
4
3
2
1

MD-76 (TAPE SENSOR)

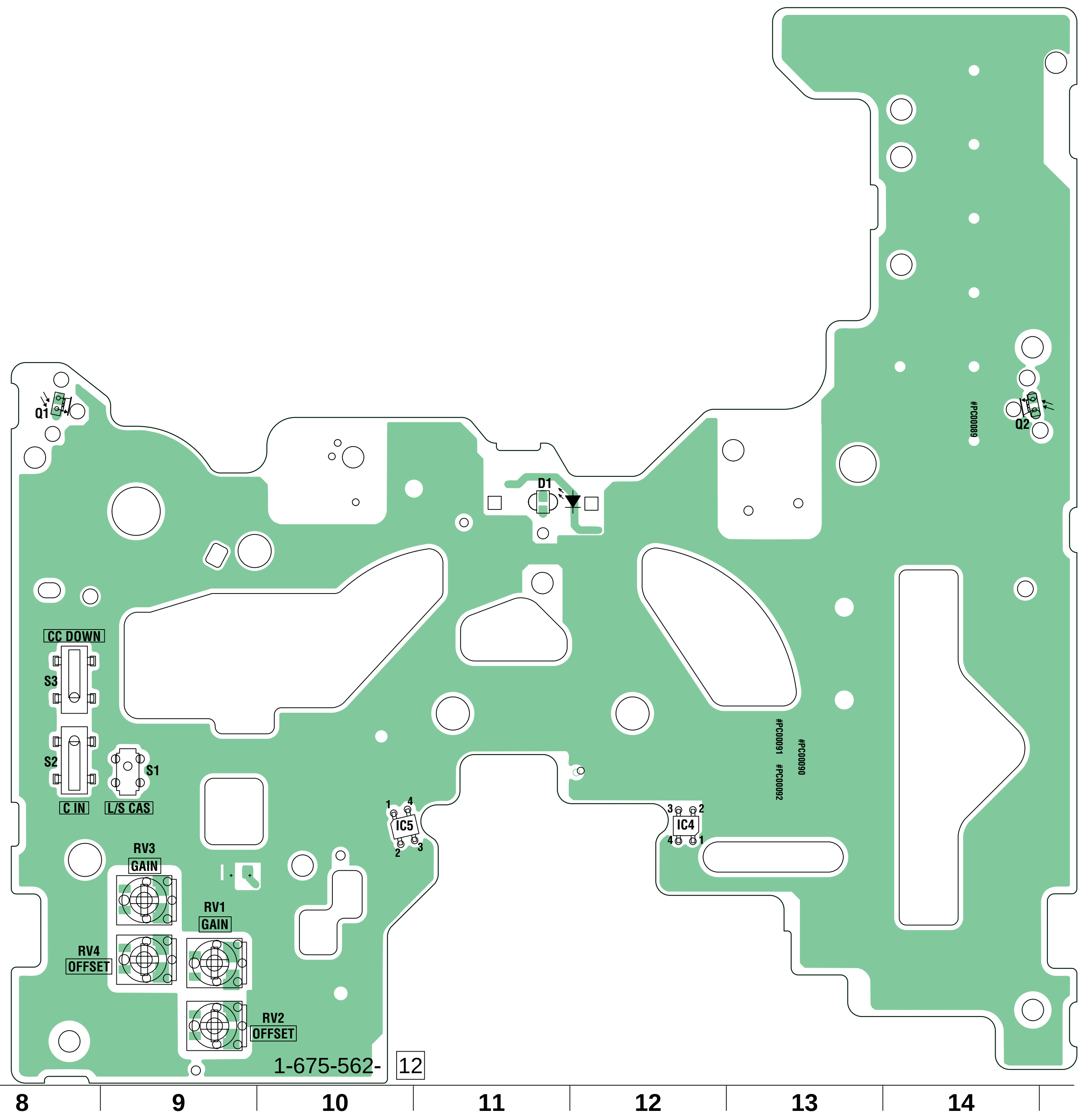
- **For Printed Wiring Board.**
- MD-76 board is four-layer print board. However, the patterns of layers 2 to 3 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-181 for printed parts location.
- Chip transistor



MD-76 BOARD (SIDE A)

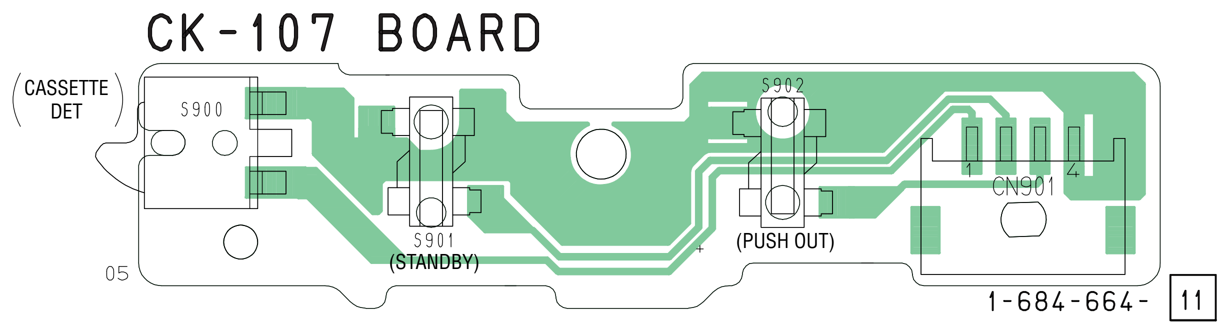

A
B
C
D
E
F
G
1
2
3
4
5
6
7
05
CN1
21 15 10 5 1
CN2
21 15 10 5 1
#PC00010.
CL19
IC2
R28
R7
JR4
R3
R8
R5
R6
R31
R4
R30
JR6
JR1
JR5
C1
IC1
C2
R26
R27
R29
R11
R10
IC3
R12
R13
JR3
R14
R32
R9
R33
CN3
R15
R1
#PC00088
#PC00096
#PC00114
#PC00097
#PC00003
1-675-562- 12

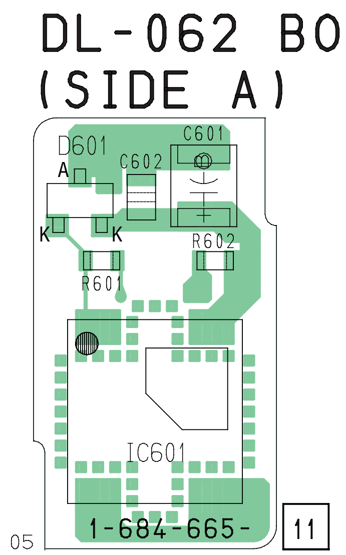
MD-76 BOARD (SIDE B)

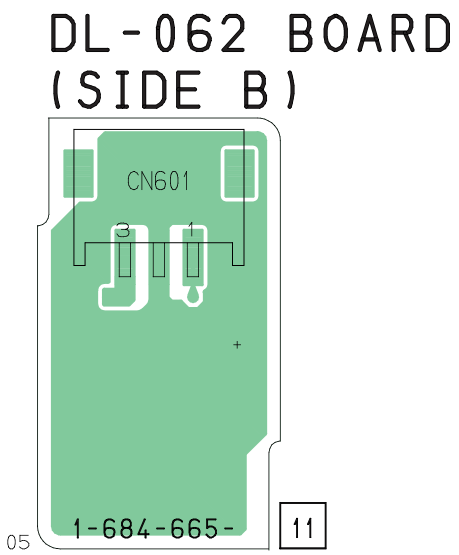

8
9
10
11
12
13
14
Q1
D1
CC DOWN
S3
S2
S1
C IN
L/S CAS
RV3
GAIN
RV1
GAIN
RV4
OFFSET
RV2
OFFSET
IC5
IC4
Q2
#PC00089
#PC00091
#PC00092
#PC00090
1-675-562- 12

CK-107 (EJECTION DETECT SWITCH)/DL-062 (REMOTE CONTROL RECEIVER)

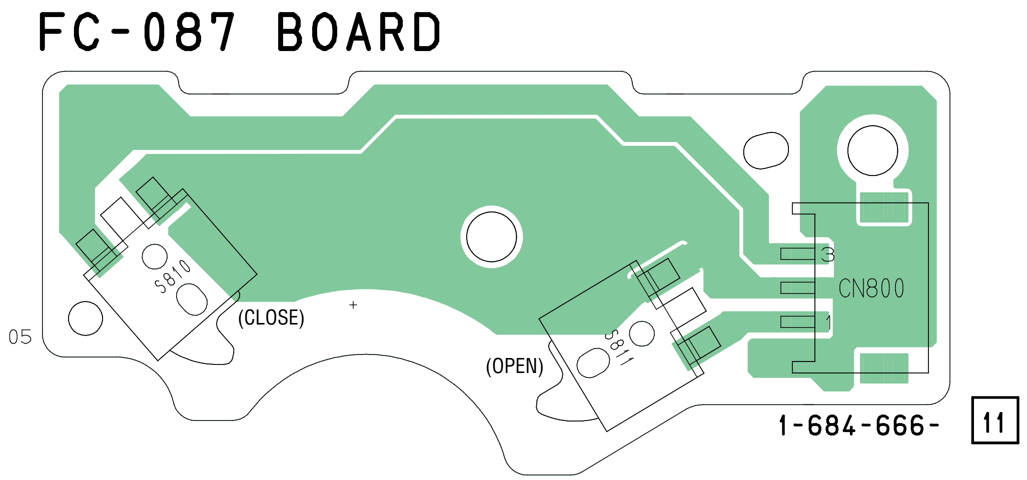
- **For Printed Wiring Board.**
- LF :Uses unleaded solder.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.

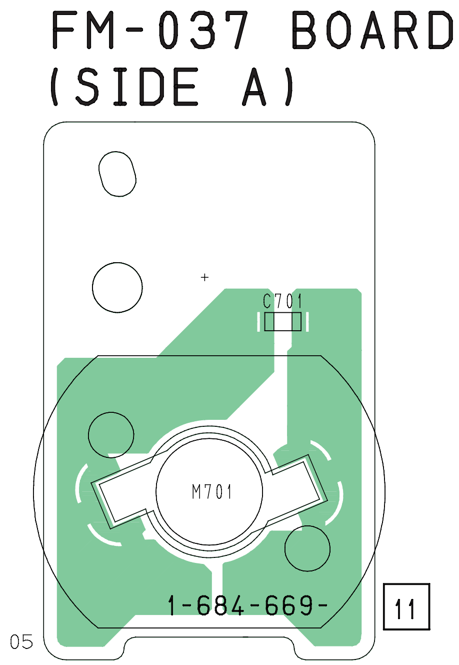

CK-107 BOARD
CASSETTE DET
S900
S901
(STANDBY)
S902
(PUSH OUT)
CN901
1
4
05
1-684-664-
11

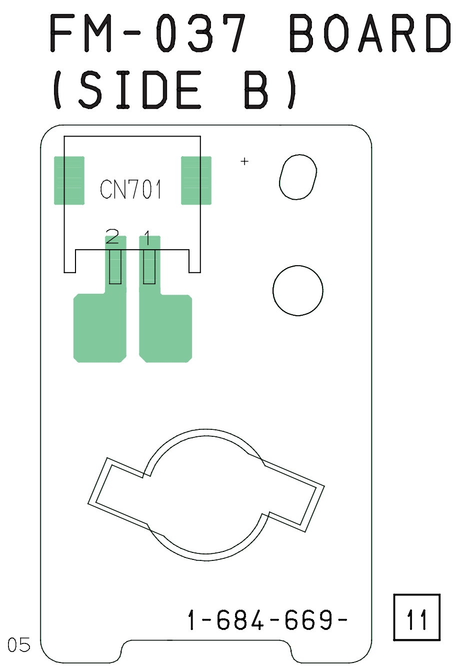

DL-062 BOARD
(SIDE A)
D601
A
K
K
C602
C601
R602
R601
IC601
05
1-684-665-
11


DL-062 BOARD
(SIDE B)
CN601
3
1
05
1-684-665-
11

FC-087 (FRONT DOOR DETECT SWITCH)/FM-037 (FRONT DOOR MOTOR)

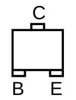

FC-087 BOARD
S810
(CLOSE)
S811
(OPEN)
CN800
3
1
05
1-684-666-
11

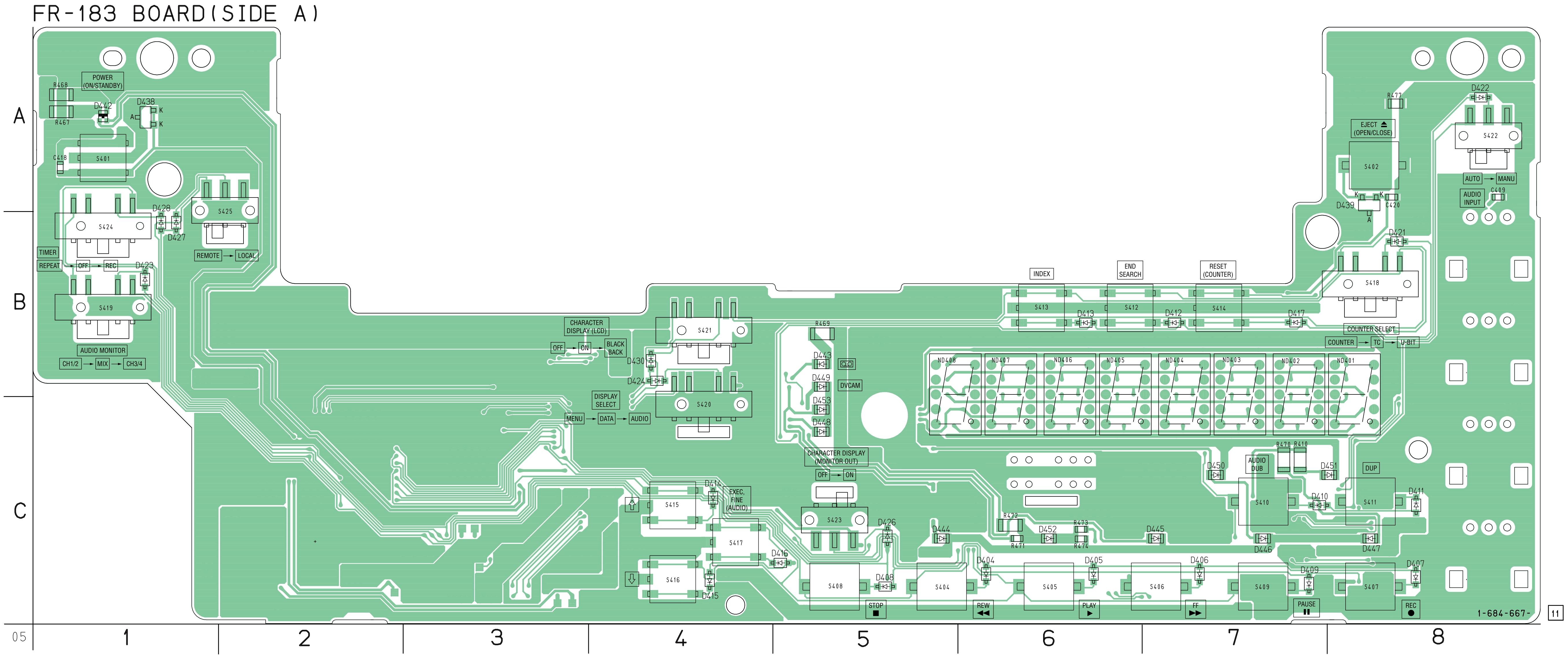

FM-037 BOARD
(SIDE A)
C701
M701
05
1-684-669-
11


FM-037 BOARD
(SIDE B)
CN701
2
1
05
1-684-669-
11

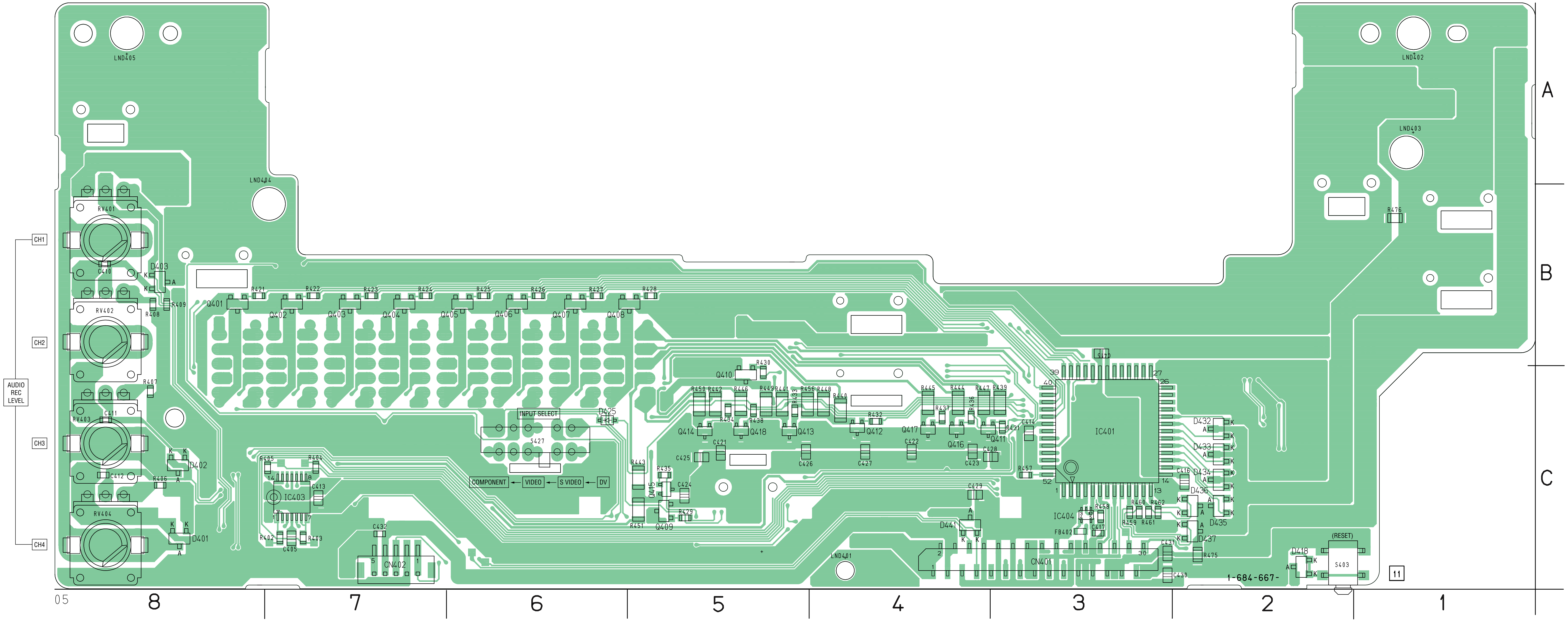
FR-183 (USER CONTROL)

- **For Printed Wiring Board.**
- LF :Uses unleaded solder.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-181 for printed parts location.
- Chip transistor



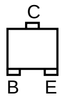

FR-183 BOARD(SIDE A)
A
B
C
1
2
3
4
5
6
7
8
05
POWER (ON/STANDBY)
R468
R467
D442
D438
C418
S401
S424
S425
D428
D427
TIMER
REPEAT
OFF
REC
D423
REMOTE
LOCAL
S419
AUDIO MONITOR
CH1/2
MIX
CH3/4
CHARACTER DISPLAY (LCD)
OFF
ON
BLACK BACK
S421
D430
D424
DISPLAY SELECT
MENU
DATA
AUDIO
S420
R469
D443
D449
D453
D448
DVCAM
CHARACTER DISPLAY (MONITOR OUT)
OFF
ON
S423
D426
S415
S416
S417
D414
D416
D415
EXEC, FINE (AUDIO)
S408
D408
STOP
S404
D444
D404
REW
R472
R471
D452
R473
R474
S405
D405
PLAY
D445
S406
D406
FF
INDEX
END SEARCH
RESET (COUNTER)
S413
S412
S414
D413
D412
D417
ND408
ND407
ND406
ND405
ND404
ND403
ND402
ND401
D450
AUDIO DUB
R476
R410
D451
S410
D410
DUP
S411
D411
D446
D447
S409
D409
PAUSE
S407
D407
REC
EJECT (OPEN/CLOSE)
R477
S402
D439
C420
D422
S422
AUTO
MANU
AUDIO INPUT
C409
D421
S418
COUNTER SELECT
COUNTER
TC
U-BIT
1-684-667-
11

FR-183 BOARD(SIDE B)

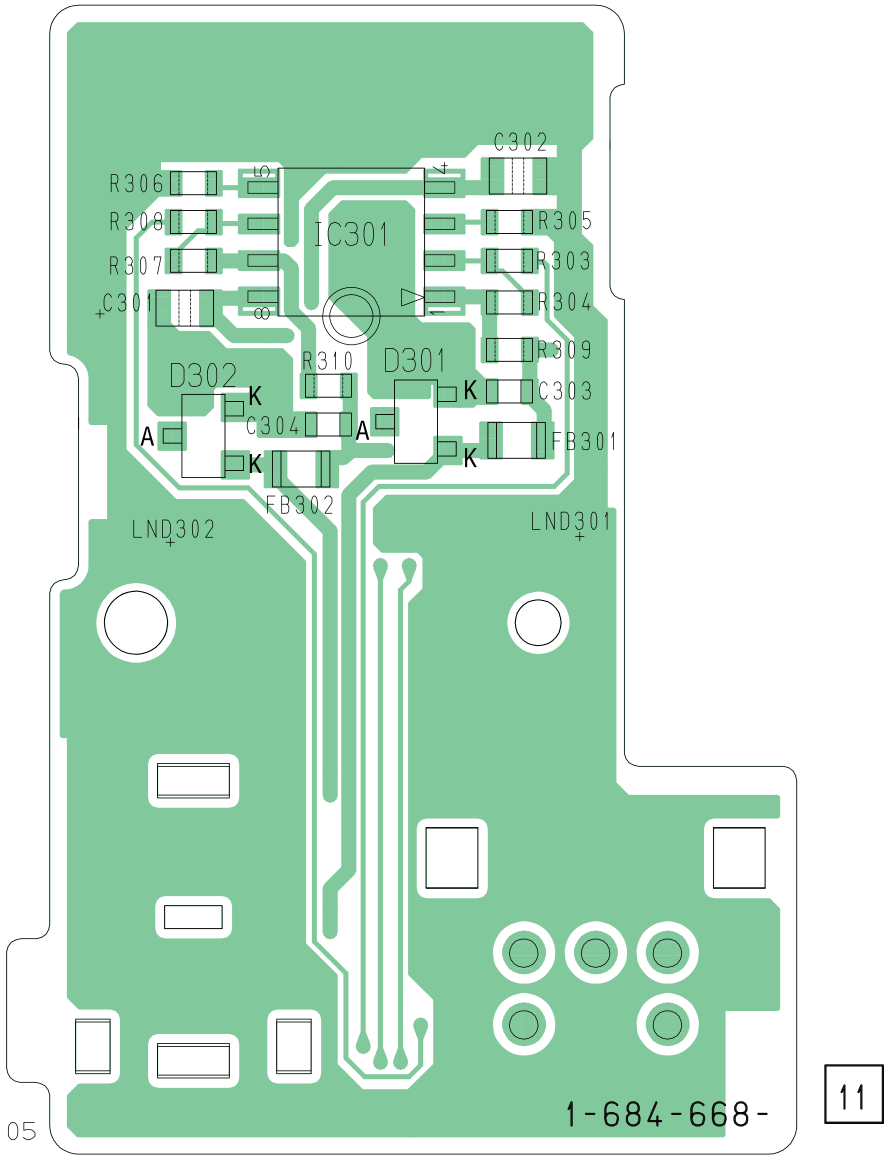

LND405
LND404
LND402
LND403
LND401
RV401
RV402
RV403
RV404
CH1
CH2
CH3
CH4
AUDIO
REC
LEVEL
D401
D402
D403
D418
D425
D432
D433
D434
D435
D436
D437
D441
Q401
Q402
Q403
Q404
Q405
Q406
Q407
Q408
Q409
Q410
Q411
Q412
Q413
Q414
Q415
Q416
Q417
Q418
R421
R422
R423
R424
R425
R426
R427
R428
R476
IC401
IC403
IC404
CN401
CN402
FB402
S403
S427
(RESET)
INPUT SELECT
COMPONENT
VIDEO
S VIDEO
DV
1-684-667-
11
05
A
B
C
8
7
6
5
4
3
2
1

HP-135 (HEAD PHONE)

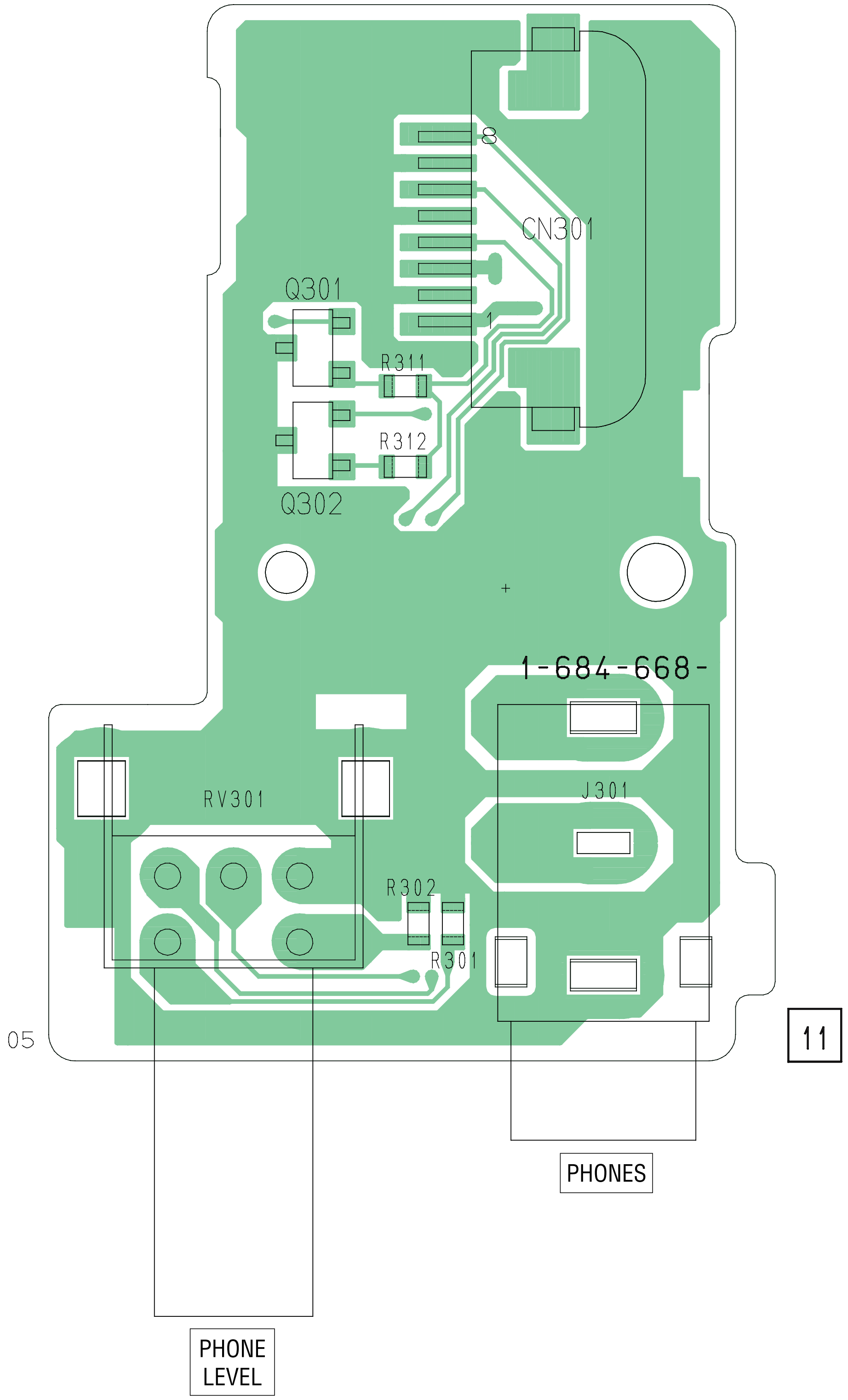
- **For Printed Wiring Board.**
- 🟩 :Uses unleaded solder.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- Chip transistor



HP-135 BOARD(SIDE A)

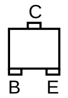

C302
R306
R308
R307
C301
5
4
8
1
IC301
R305
R303
R304
R309
C303
FB301
D302
R310
D301
K
A
K
C304
A
K
K
FB302
LND302
LND301
1-684-668-
05
11

HP-135 BOARD(SIDE B)

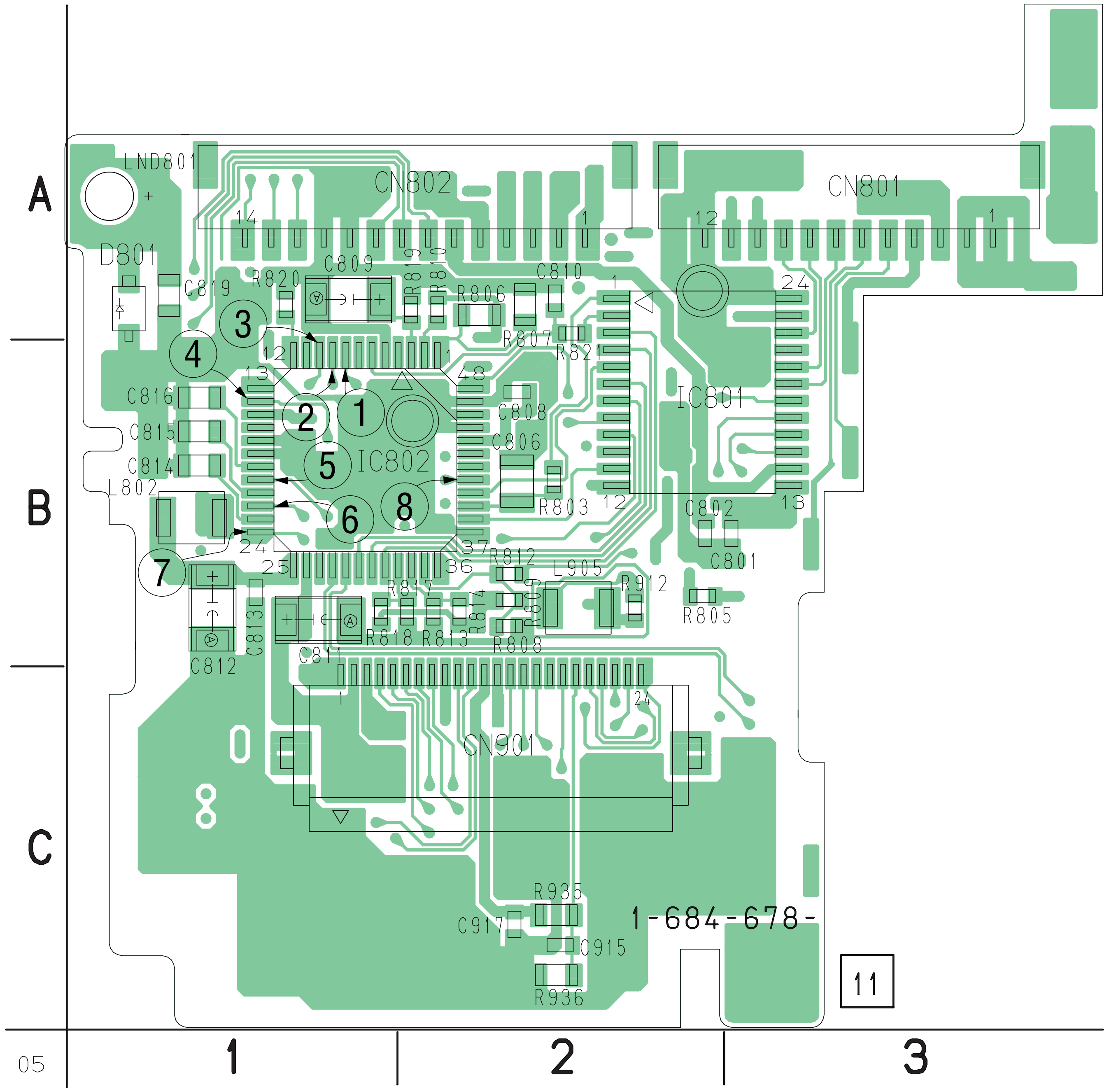

8
1
CN301
Q301
R311
R312
Q302
1-684-668-
J301
RV301
R302
R301
05
11
PHONES
PHONE
LEVEL

PD-170 (RGB DRIVER, TIMING GENERATOR)

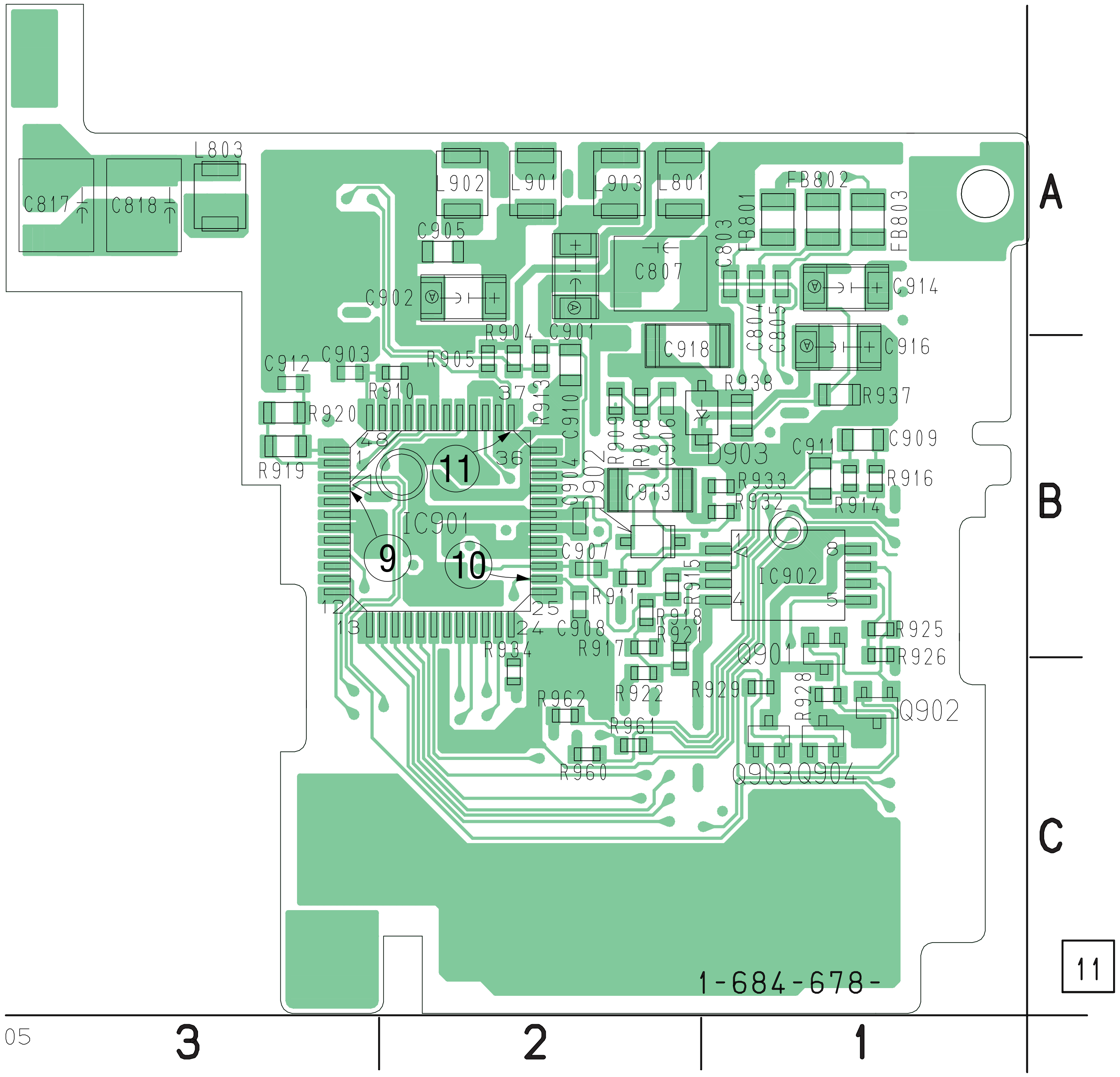
- **For Printed Wiring Board.**
- PD-170 board is five-layer print board. However, the patterns of layers 2 to 4 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-181 for printed parts location.
- Chip transistor



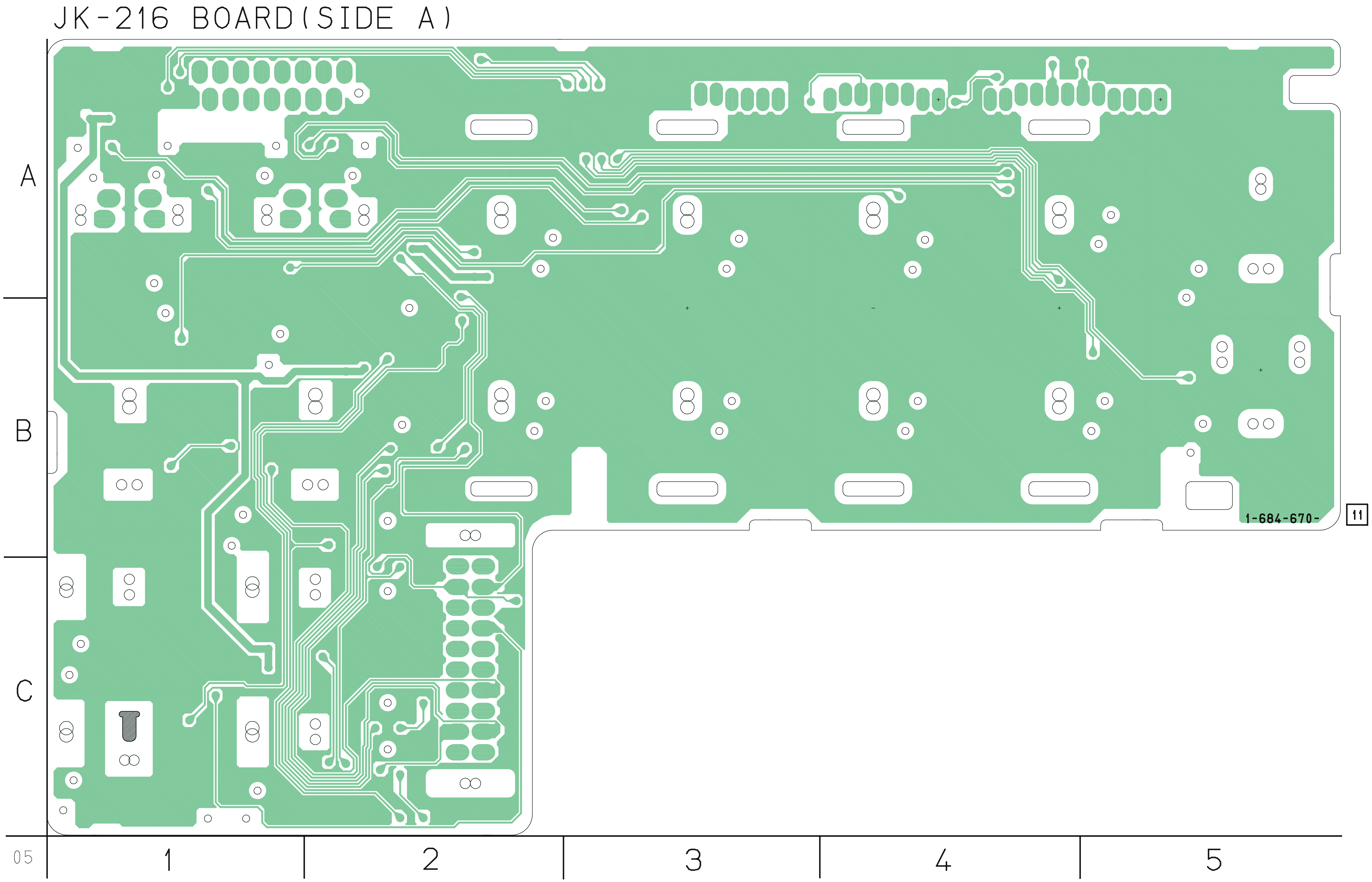
PD-170 BOARD(SIDE A)


A
B
C
1
2
3
05
LND801
D801
CN802
CN801
14
1
12
24
13
C819
R820
C809
R819
R810
R806
C810
R807
R821
IC801
C816
C815
C814
L802
IC802
C808
C806
R803
C802
C801
R812
R817
L905
R912
R805
C813
C812
C811
R818
R813
R814
R809
R808
CN901
R935
C917
C915
R936
1-684-678-
11
1
2
3
4
5
6
7
8
25
36
37
48

PD-170 BOARD(SIDE B)

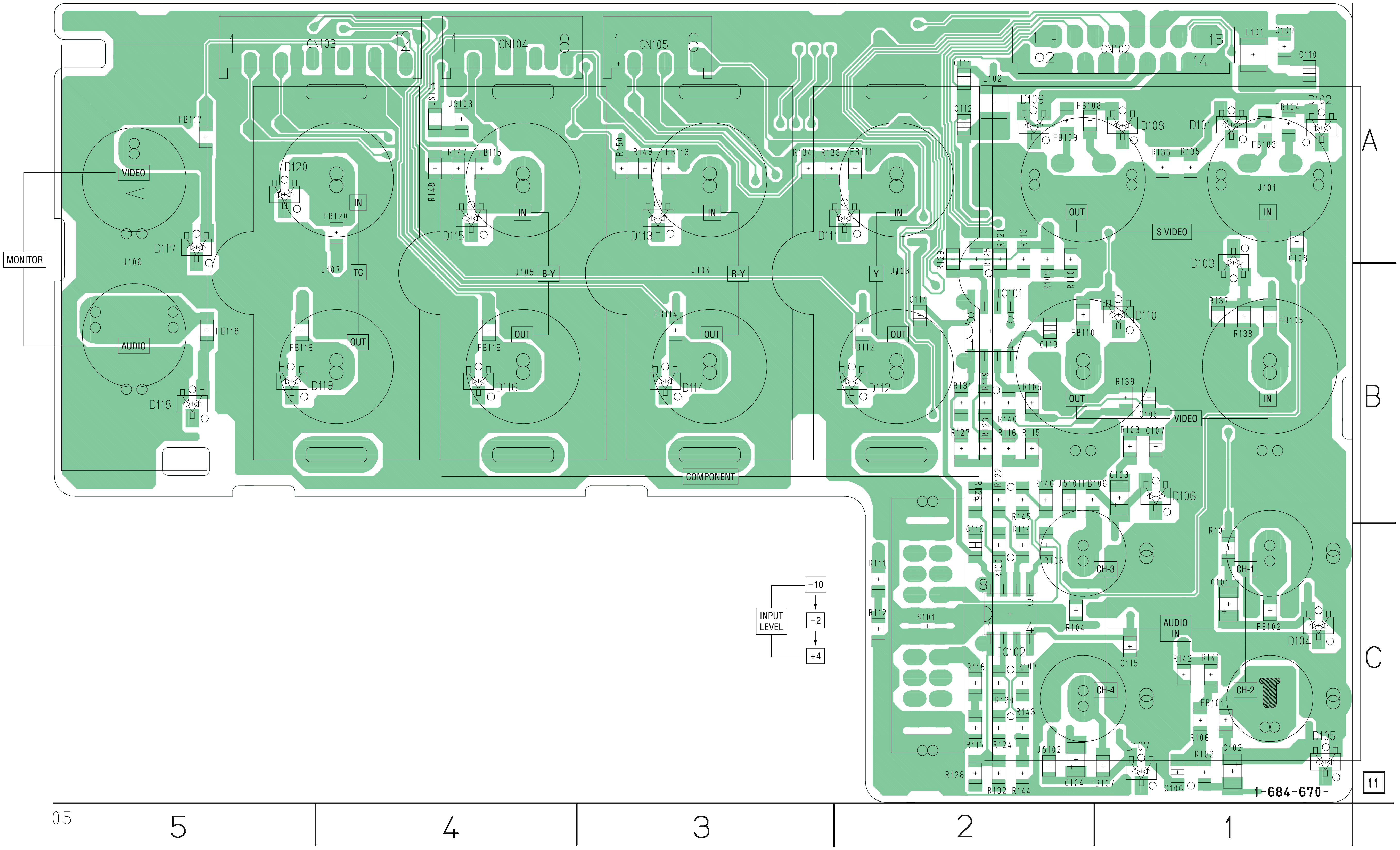

A
B
C
3
2
1
05
L803
C817
C818
L902
L901
L903
L801
FB802
FB801
FB803
C905
C803
C807
C914
C902
C804
C805
R904
C901
C916
C912
C903
R905
C918
R938
R910
R937
R920
R913
C910
R909
R908
C906
C909
R919
D903
C911
R916
Q902
C913
R933
R932
R914
IC901
C907
IC902
R911
R915
R925
C908
R918
R926
R934
R917
R921
Q901
R962
R922
R929
R928
Q902
R961
R960
Q903
Q904
1-684-678-
11
9
10
11
1
12
13
24
25
36
37
48
4
5
8

JK-216 (VIDEO/AUDIO IN/OUT)


JK-216 BOARD(SIDE A)
A
B
C
1-684-670-
11
05
1
2
3
4
5

- **For Printed Wiring Board.**
- 🄻🄵 :Uses unleaded solder.
- JK-216 board is three-layer print board. However, the patterns of layer 2 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-181 for printed parts location.

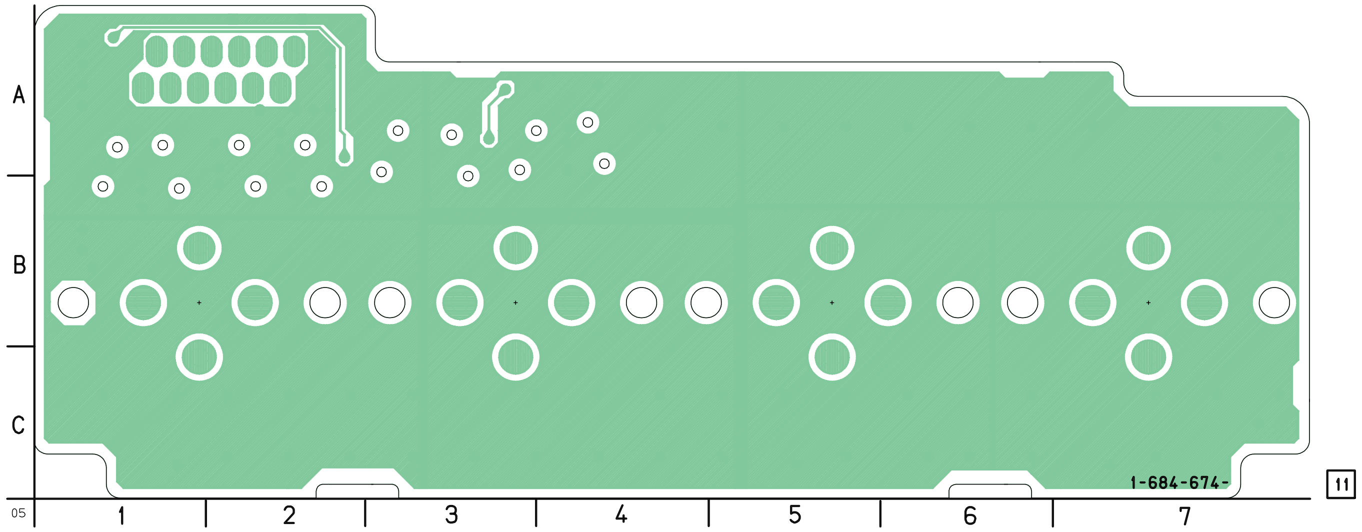
JK-216 BOARD(SIDE B)


CN103
1
12
CN104
8
CN105
6
CN102
15
14
2
L101
C109
C110
C111
L102
C112
JS104
JS103
FB117
D109
FB108
D108
D101
FB104
D102
FB109
FB103
D120
R147
FB115
R150
R149
FB113
R134
R133
FB111
R136
R135
VIDEO
R148
IN
FB120
J101
OUT
S VIDEO
MONITOR
D117
D115
D113
D111
J106
J107
TC
J105
B-Y
J104
R-Y
Y
J103
R129
R125
R121
R113
R109
R110
IC101
D103
C108
C114
FB114
R137
R138
FB105
D110
FB110
C113
AUDIO
FB118
FB119
FB116
FB112
D119
D116
D114
D112
R131
R119
R105
R139
D118
R140
R127
R123
R116
R115
C105
R103
C107
COMPONENT
R126
R122
R146
JS101
FB106
C103
D106
C116
R145
R114
R108
CH-3
R101
CH-1
R111
R130
C101
INPUT LEVEL
−10
−2
+4
R112
S101
IC102
R104
FB102
D104
AUDIO IN
C115
R118
R107
R142
R141
R120
CH-4
CH-2
R143
FB101
R117
R124
R106
D105
JS102
D107
R102
C102
R128
R132
R144
C104
FB107
C106
1-684-670-
11
A
B
C
05
5
4
3
2
1

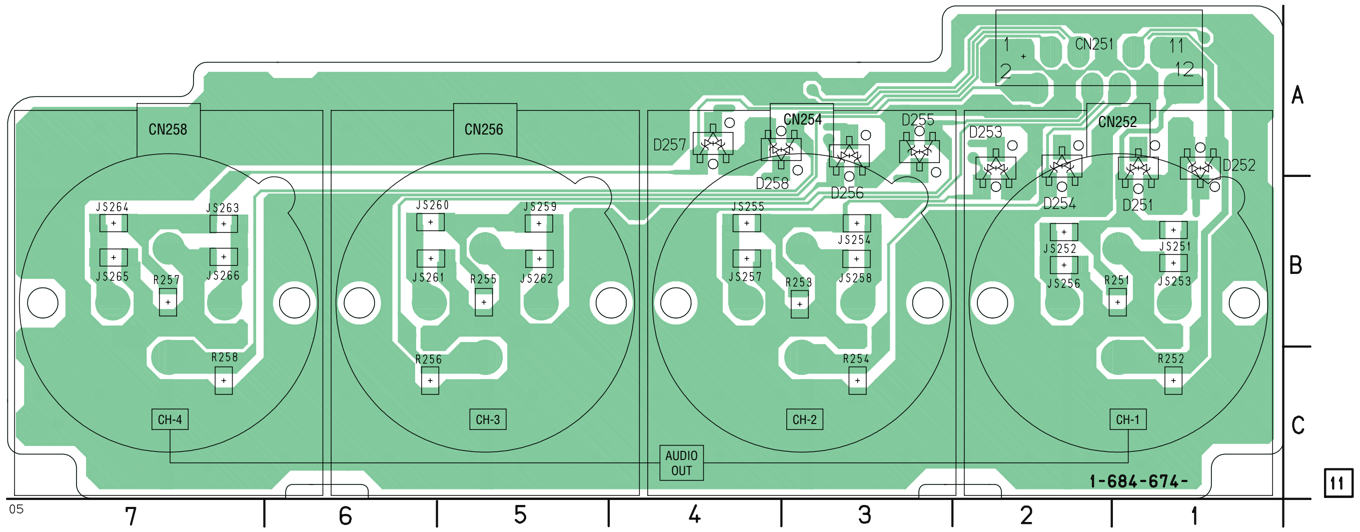
XL-005 (AUDIO OUT)

- **For Printed Wiring Board.**
- 🄻 :Uses unleaded solder.
- XL-005 board is three-layer print board. However, the patterns of layer 2 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-181 for printed parts location.

XL-005 BOARD(SIDE A)


A
B
C
1-684-674-
11
05
1
2
3
4
5
6
7

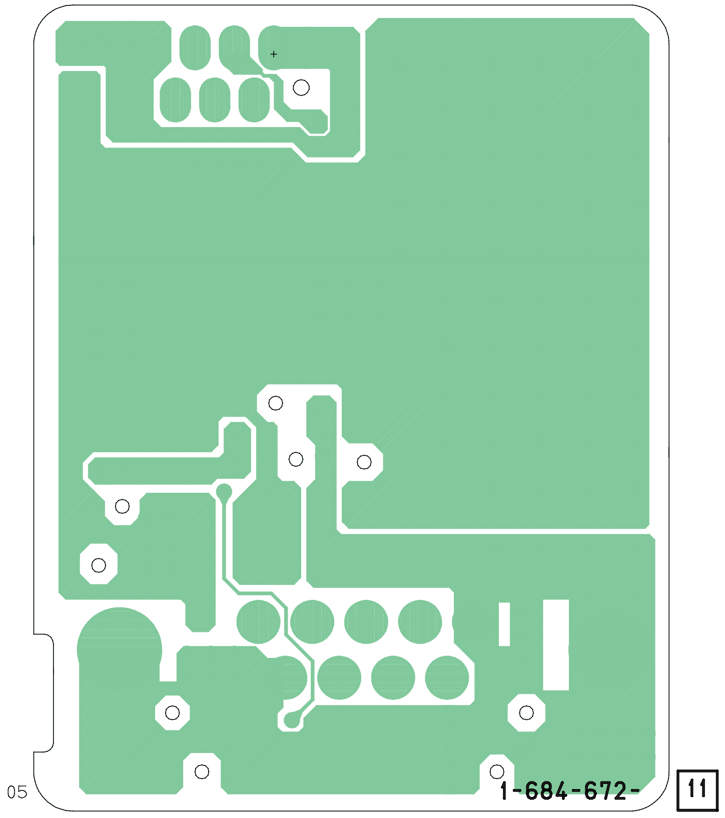
XL-005 BOARD(SIDE B)


CN251
1
2
11
12
CN258
CN256
D257
CN254
D258
D256
D255
D253
CN252
D254
D251
D252
JS264
JS263
JS265
R257
JS266
R258
CH-4
JS260
JS259
JS261
R255
JS262
R256
CH-3
JS255
JS254
JS257
R253
JS258
R254
CH-2
AUDIO OUT
JS252
JS251
JS256
R251
JS253
R252
CH-1
1-684-674-
11
A
B
C
05
7
6
5
4
3
2
1

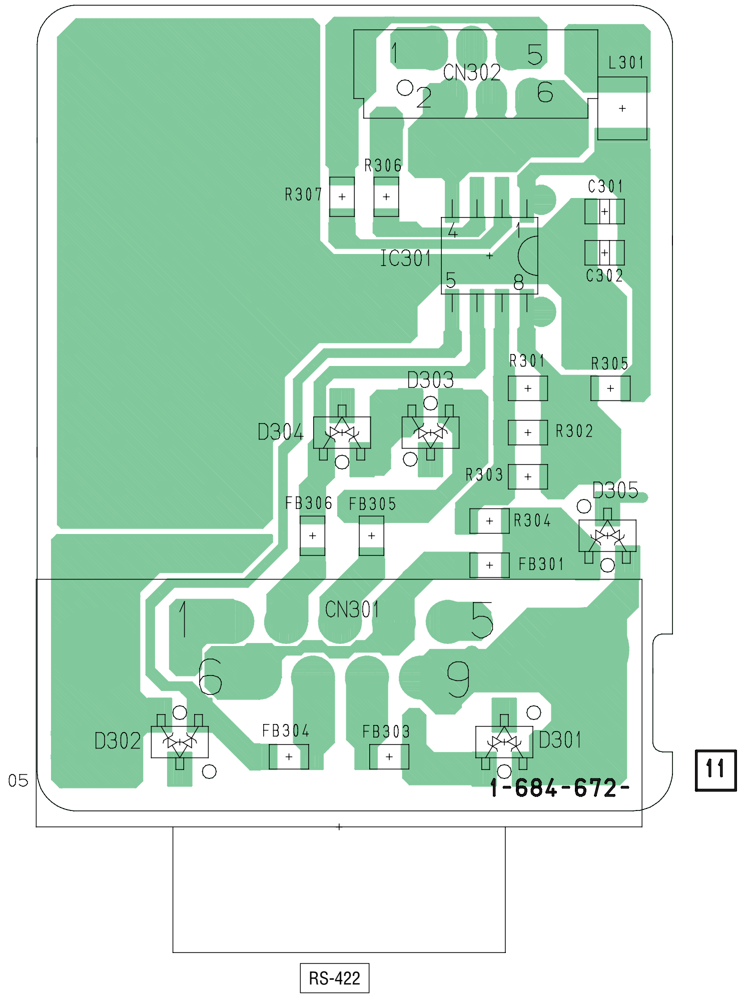
RS-082 (RS-422 DRIVER)/RS-083 (RS-232C DRIVER)

- **For Printed Wiring Board.**
- :Uses unleaded solder.
- RS-082 and RS-083 boards are three-layer print board. However, the patterns of layer 2 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.

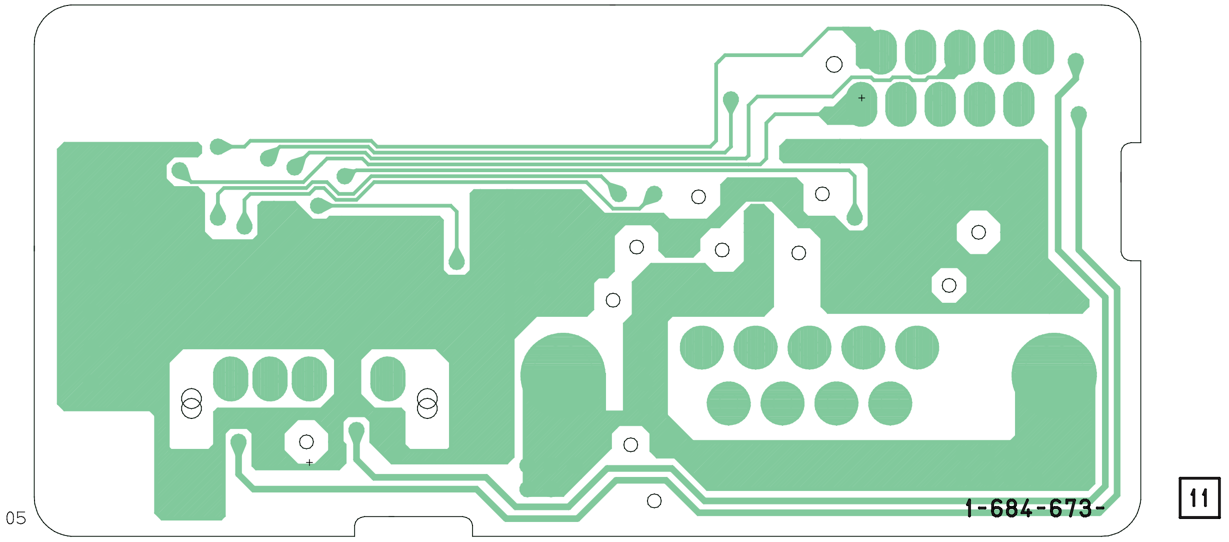
RS-082 BOARD(SIDE A)


05
1-684-672-
11

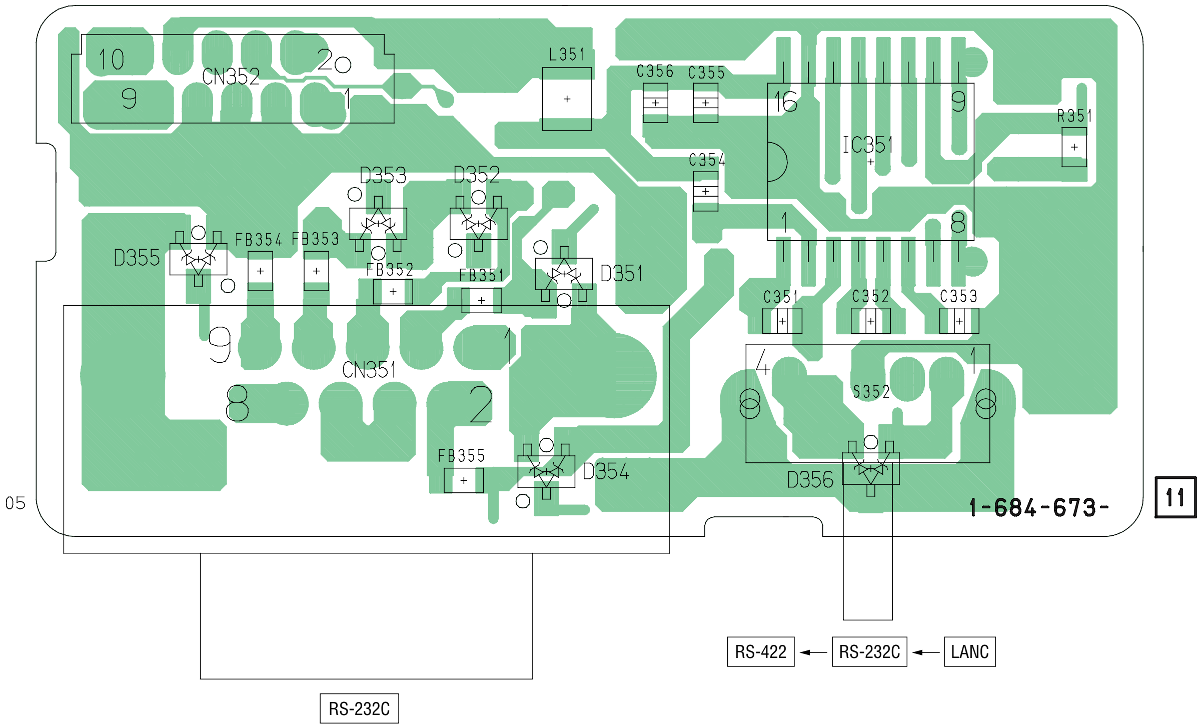
RS-082 BOARD(SIDE B)


CN302
1
2
5
6
L301
R307
R306
C301
IC301
4
1
5
8
C302
R301
R305
D303
D304
R302
R303
D305
FB306
FB305
R304
FB301
CN301
1
5
6
9
D302
FB304
FB303
D301
05
1-684-672-
11
RS-422

RS-083 BOARD(SIDE A)


05
1-684-673-
11

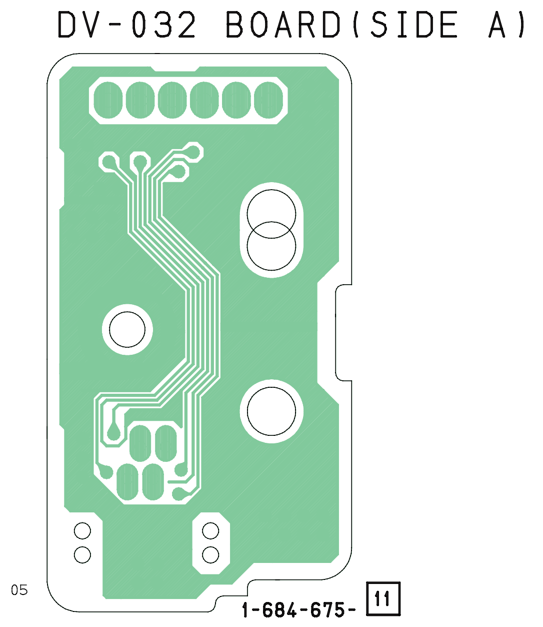
RS-083 BOARD(SIDE B)

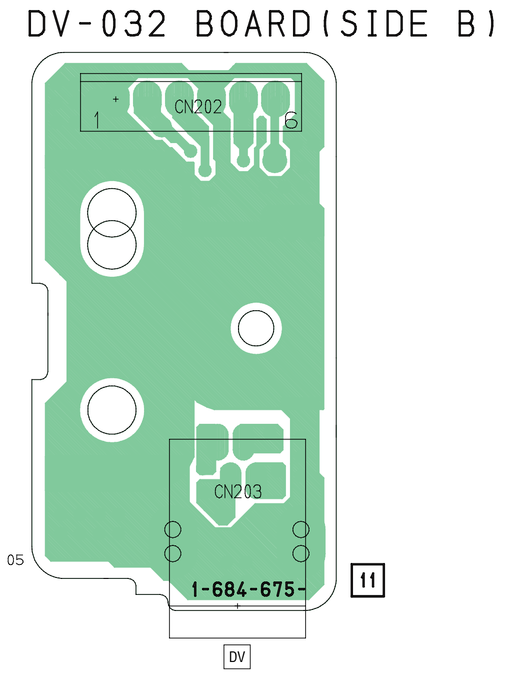

10
9
CN352
20
11
L351
C356
C355
R351
16
9
IC351
C354
D353
D352
D355
FB354
FB353
FB352
FB351
D351
1
8
C351
C352
C353
9
1
CN351
8
2
4
1
S352
FB355
D354
D356
05
1-684-673-
11
RS-422
RS-232C
LANC
RS-232C

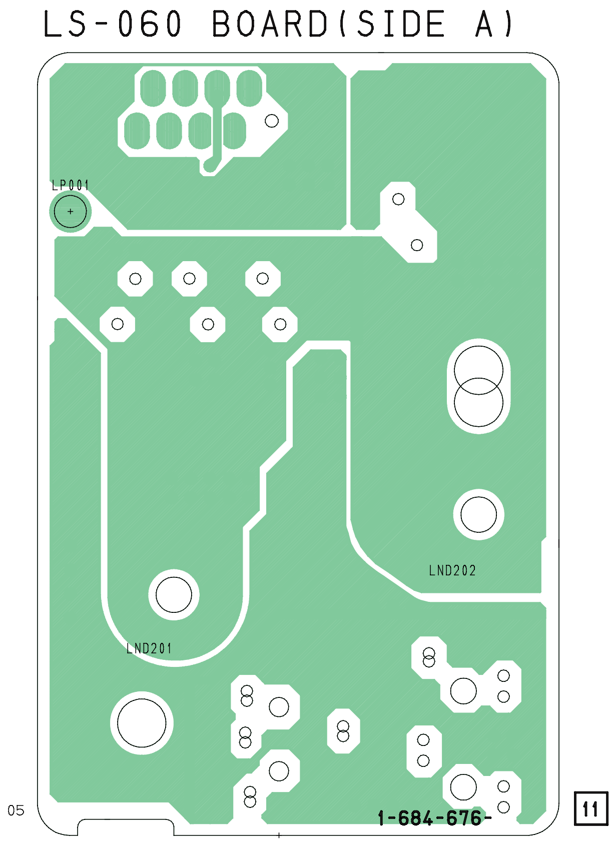
DV-032 (DV CONNECTOR)

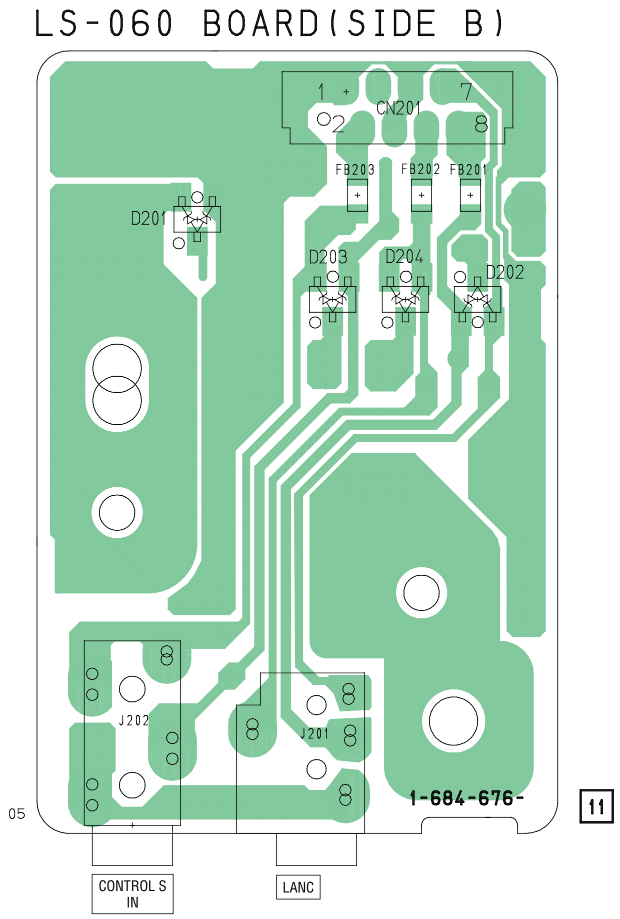
LS-060 (CONTROL JACK)

- **For Printed Wiring Board.**
- LF :Uses unleaded solder.
- DV-032 and LS-060 boards are three-layer print board. However, the patterns of layer 2 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.


DV-032 BOARD(SIDE A)
05
1-684-675-
11

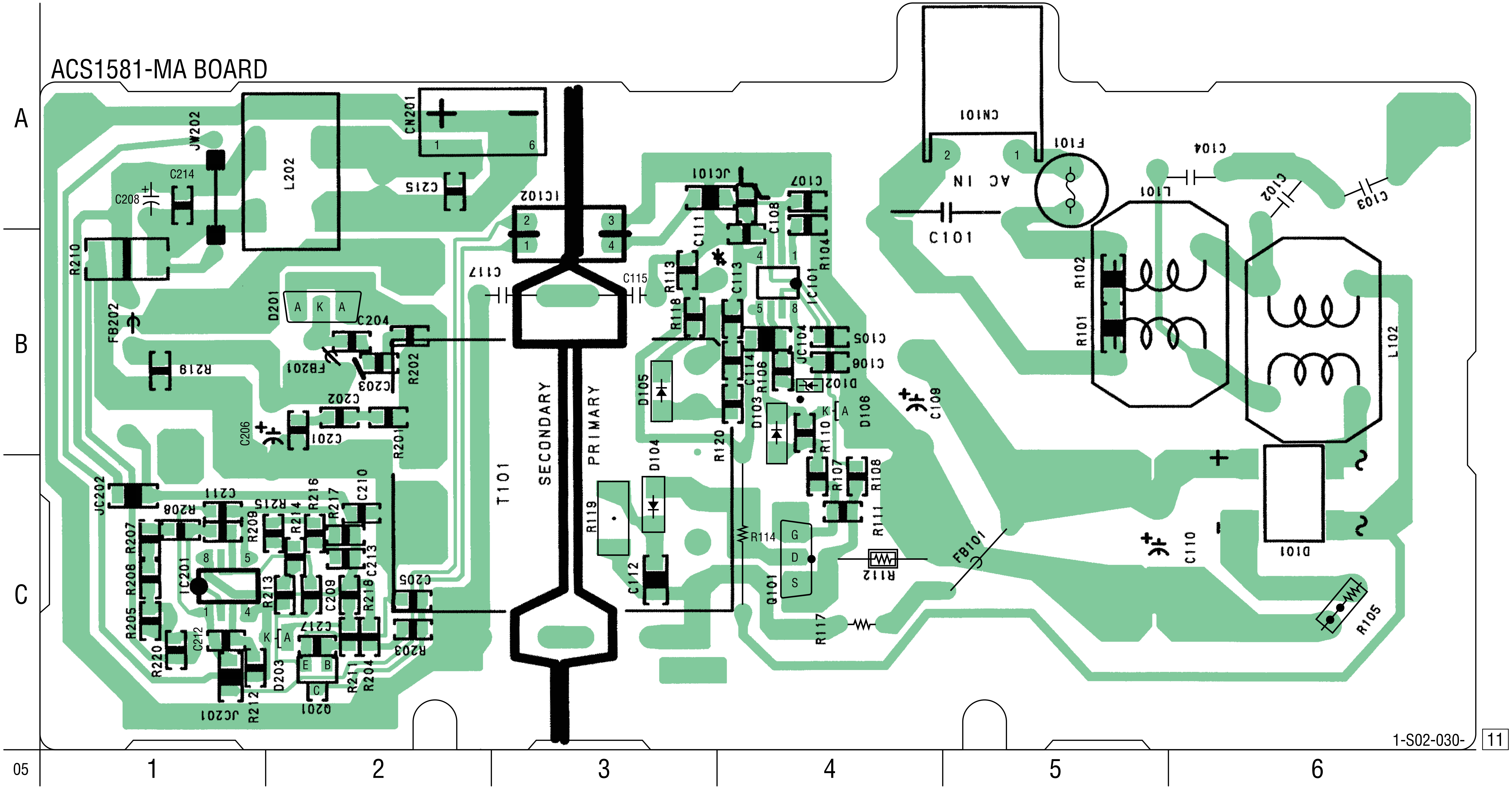

DV-032 BOARD(SIDE B)
CN202
1
6
CN203
05
1-684-675-
11
DV


LS-060 BOARD(SIDE A)
LP001
LND202
LND201
05
1-684-676-
11


LS-060 BOARD(SIDE B)
1
2
CN201
7
8
FB203
FB202
FB201
D201
D203
D204
D202
J202
J201
05
1-684-676-
11
CONTROL S IN
LANC

ACS1581-MA (POWER)

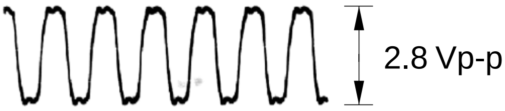
- **For Printed Wiring Board.**
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-181 for printed parts location.


ACS1581-MA BOARD
A
B
C
CN201
1
6
CN101
2
1
AC IN
F101
C101
C104
L101
C102
C103
R102
R101
L102
D101
C110
R105
FB101
R112
R117
Q101
G
D
S
R114
R111
R107
R108
R110
D106
C108
C109
C105
C106
D102
JC104
R106
D103
C114
R120
C113
R113
R118
IC101
5
8
4
1
R104
C107
JC101
C111
C108
C115
IC102
2
3
1
4
C117
T101
SECONDARY
PRIMARY
R119
D104
D105
C112
C215
L202
JW202
C214
C208
R210
FB202
D201
A
K
A
C204
FB201
R218
C203
R202
C202
C206
C201
R201
JC202
R208
C211
R215
R216
R214
R217
C210
R209
R207
R206
R205
IC201
8
5
1
4
R213
C209
C213
R219
C205
C212
R220
K
A
C217
E
B
C
D203
R211
R204
R203
JC201
R212
Q201
1-S02-030-
11
05
1
2
3
4
5
6

4-4. WAVEFORMS

RP-234 BOARD

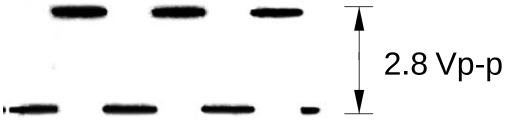
①



13.5 MHz

IC301 ㊶ REC/PB

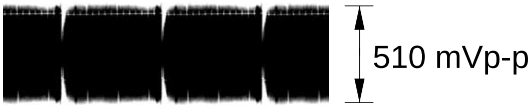
②



150 Hz

IC301 (55) REC/PB

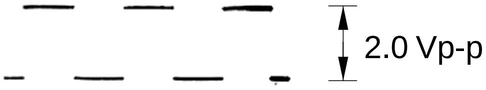
③



300 Hz

IC101 ㉗ PB

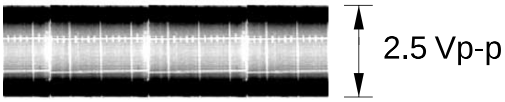
④



150 Hz

IC101 ㉟ REC/PB

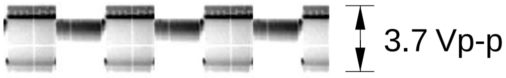
⑤



300 Hz

IC101 ㊷ REC

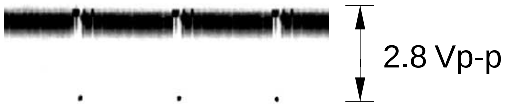
⑥



150 Hz

IC101 ①, ②, ⑥, ⑦ REC

⑦

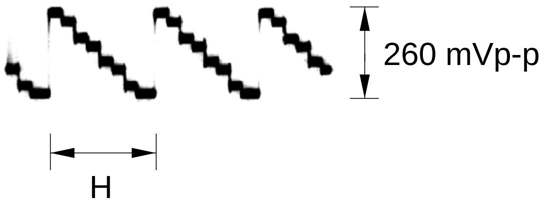


300 Hz

IC101 ⑪, ⑫ REC

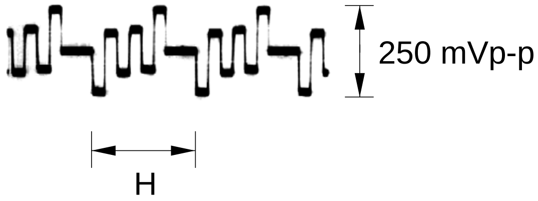
JC-21 BOARD (1/5)

①



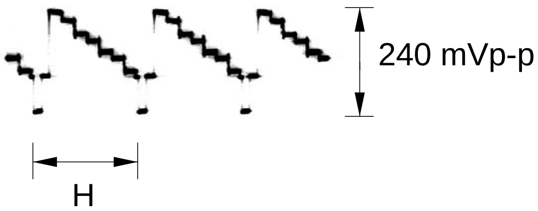
IC1000 ① REC/PB

②



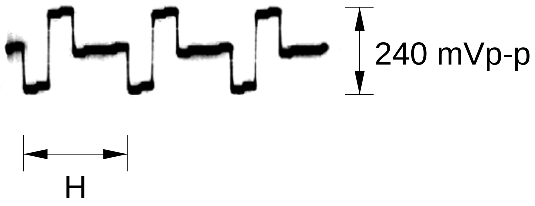
IC1002 ① REC/PB

③



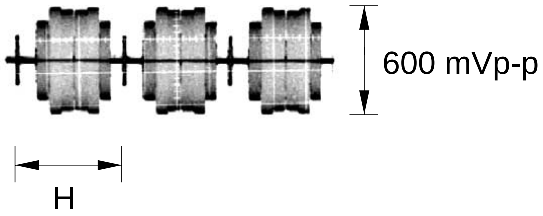
IC1112 ① REC/PB

④



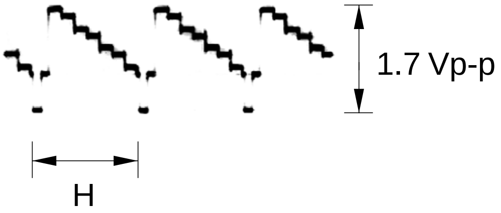
IC1001 ① REC/PB

⑤



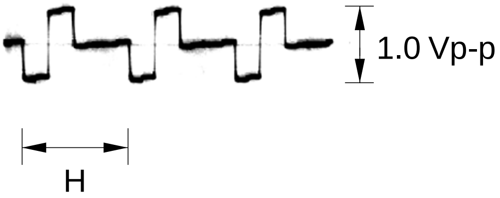
IC1111 ① REC/PB

⑥



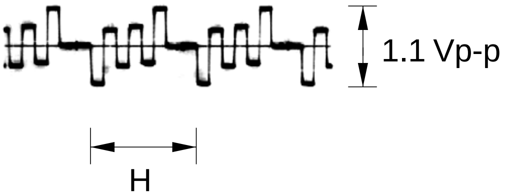
Q1117 Ⓑ REC

⑦



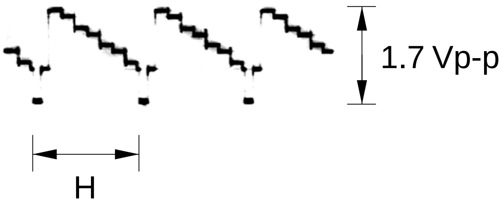
Q1118 Ⓑ REC

⑧



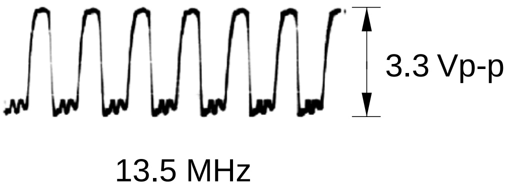
Q1119 Ⓑ REC

⑨



IC1108 ㉑ REC

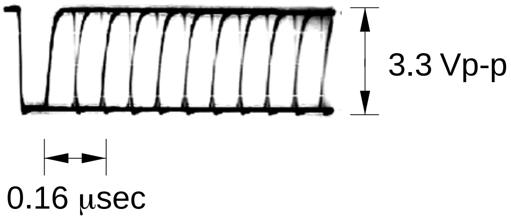
⑩



IC1108 – IC1110 ⑫ REC/PB

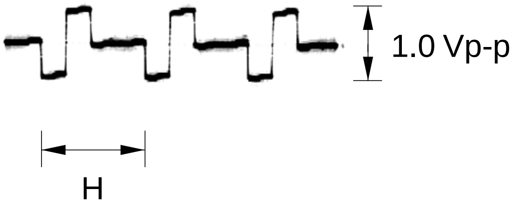
JC-21 BOARD (2/5)

⑪



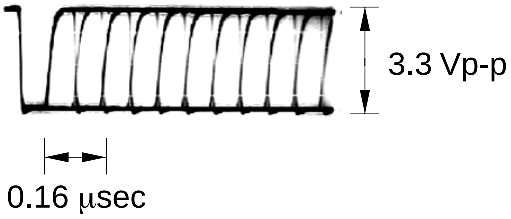
IC1108 ① – ⑧ REC

⑫



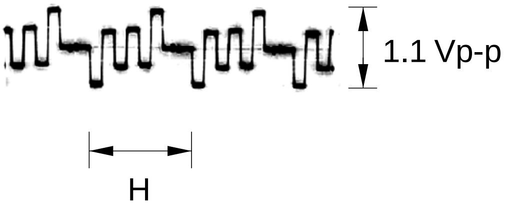
IC1109 ㉑ REC

⑬



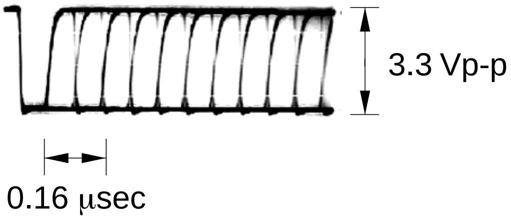
IC1109 ① – ⑧ REC

⑭



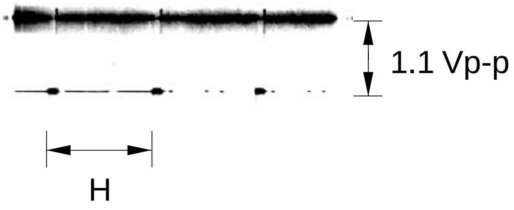
IC1110 ㉑ REC

⑮



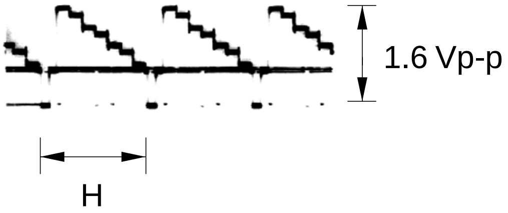
IC1110 ① – ⑧ REC

⑯



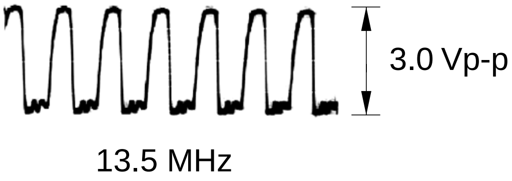
Q2200 Ⓑ PB

⑯



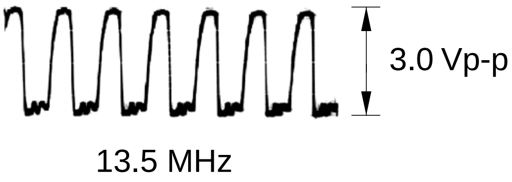
Q2200 Ⓑ REC

⑰



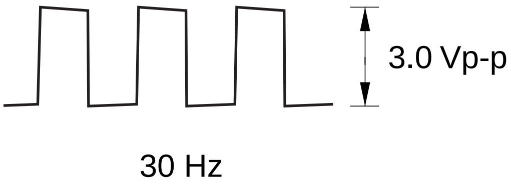
IC2204 ㊸ REC/PB

⑱



IC2204 ㊶ REC/PB

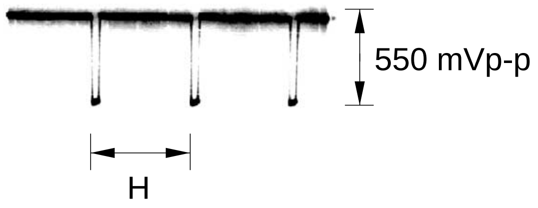
⑲



IC2204 (55) REC/PB

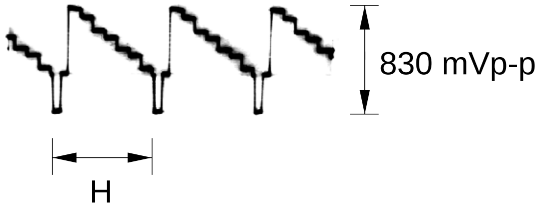
JC-21 BOARD (3/5)

⑳



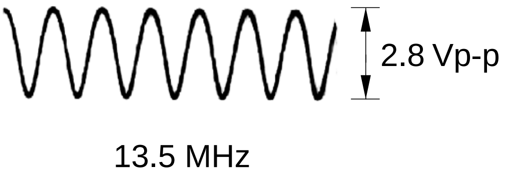
IC2204 ③, ⑦ PB

⑳



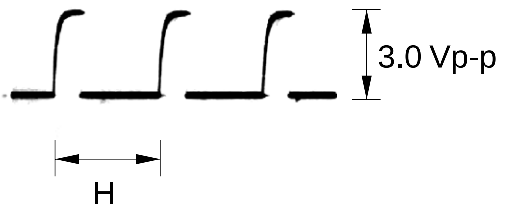
IC2204 ③, ⑦ REC

㉑



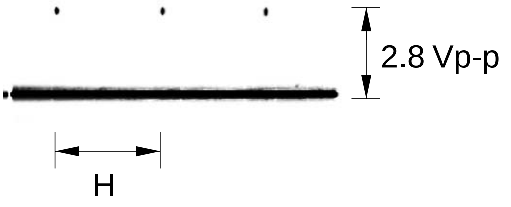
IC2204 ⑬ REC/PB

㉒



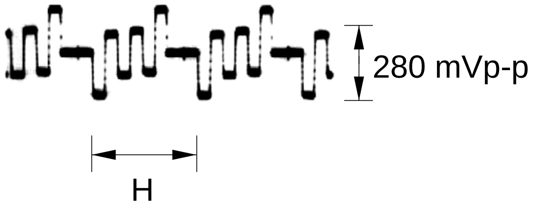
IC2204 ⑱, ⑳ REC/PB

㉓



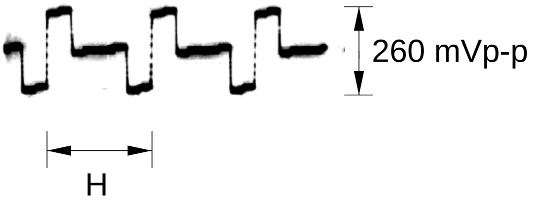
IC2204 ㉘ REC/PB

㉔



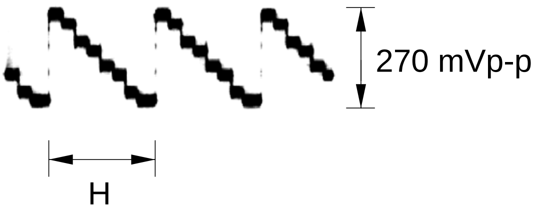
IC3300 (76) REC/PB

㉕



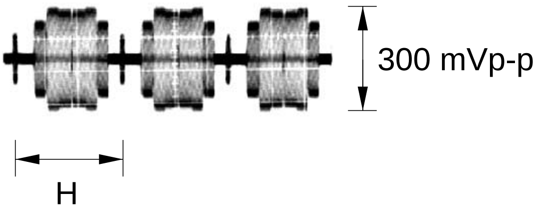
IC3300 (74) REC/PB

㉖



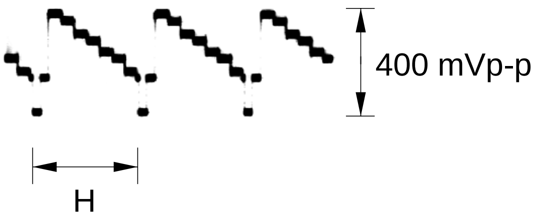
IC3300 (72) REC/PB

㉗



IC3300 (68) REC/PB

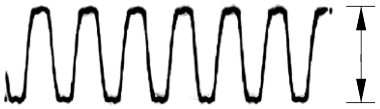
㉘



IC3300 (61) REC/PB

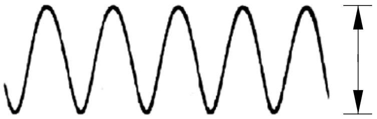
JC-21 BOARD (4/5)

㉙



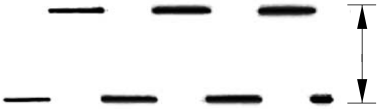
IC3302 ⑤, ⑦ REC/PB

㉚



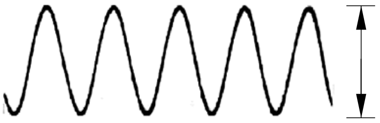
IC4400 ㉙ REC/PB

㉛



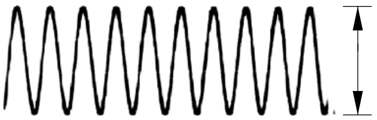
IC4400 ㊽ REC/PB

㉜



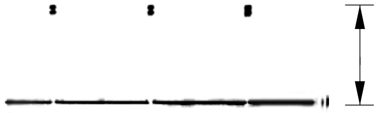
IC4400 ⑬ REC/PB

㉝



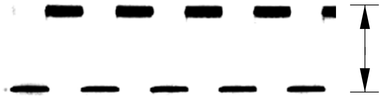
IC5003 ① REC/PB

㉞



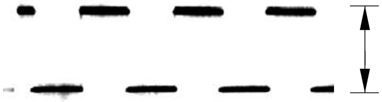
IC5003 (117) REC/PB

㉟



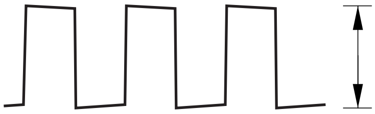
IC5003 (116) REC/PB

㊱



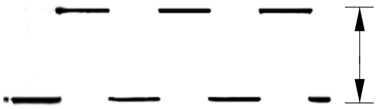
IC5003 (115) REC/PB

㊲



IC5003 (91) REC/PB

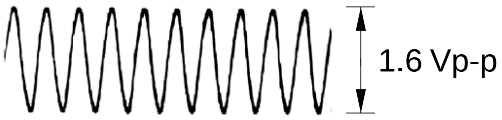
㊳



IC5003 (60) REC/PB

JC-21 BOARD (5/5)

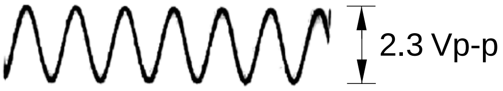
㊴



20 MHz

IC6001 ㊶ REC/PB

㊵

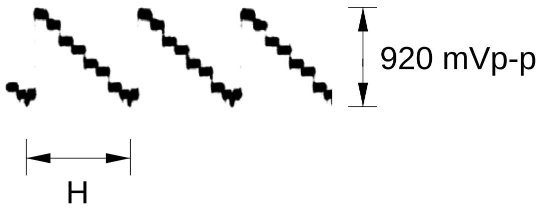


32.768 MHz

IC6001 ㊷ REC/PB

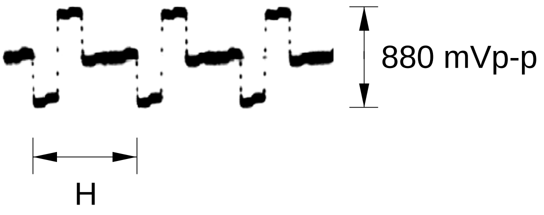
DI-73 BOARD

①



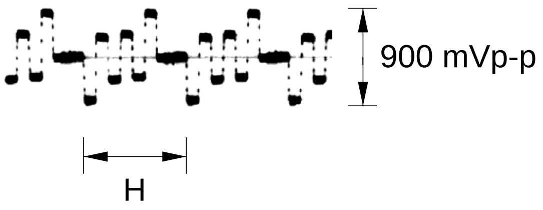
IC9000 ㊶ REC/PB

②



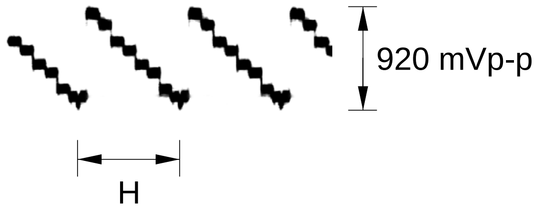
IC9000 ㊴ REC/PB

③



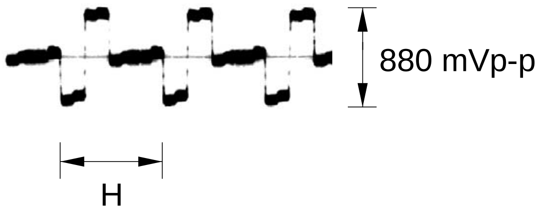
IC9000 ㊲ REC/PB

④



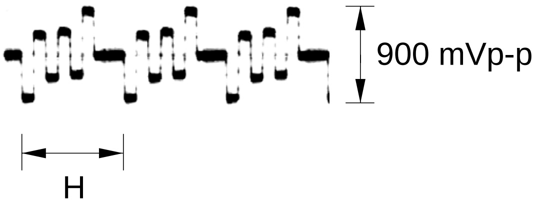
IC9001 ① REC/PB

⑤



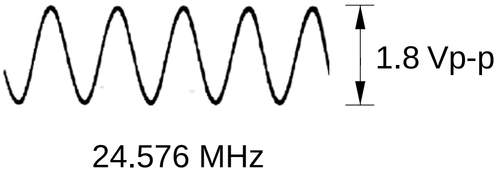
IC9007 ① REC/PB

⑥



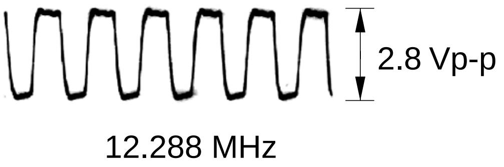
IC9010 ① REC/PB

⑦



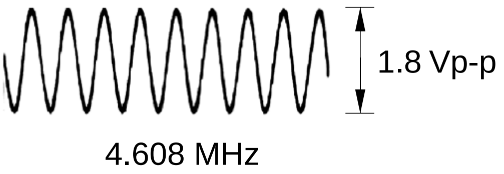
IC8000 ② REC/PB

⑧



IC8003 (99) REC/PB

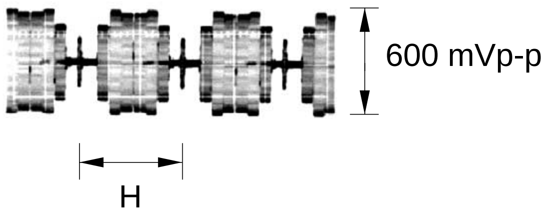
⑨



IC8009 ⑦ REC/PB

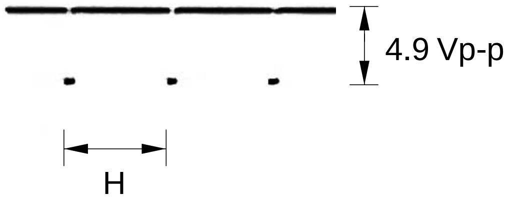
VD-032 BOARD (1/8)

①



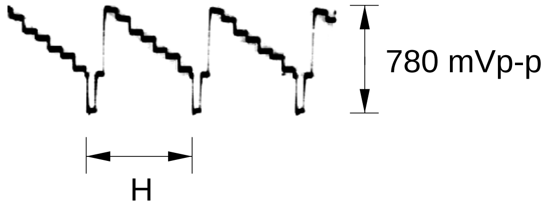
Q001 ⑤ REC

②



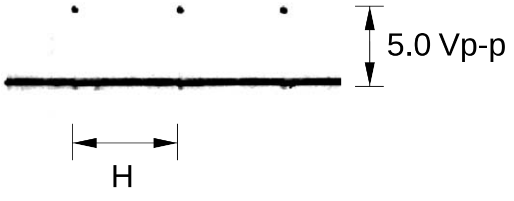
IC005 ① REC

③



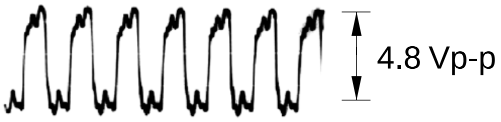
IC005 ② REC

④



IC011 ④ REC

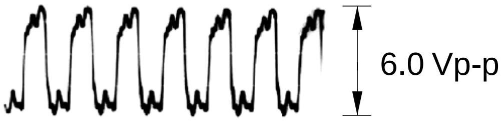
⑤



14.32 MHz (NTSC)
14.19 MHz (PAL)

IC014 ⑥ REC/PB

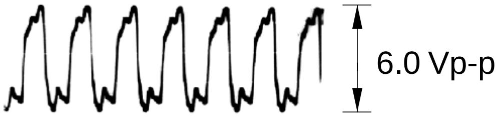
⑥



14.32 MHz (NTSC)
17.73 MHz (PAL)

IC036 ⑧ REC/PB

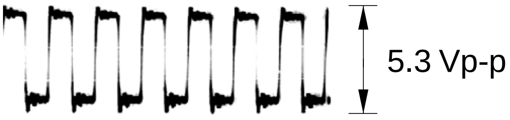
⑦



14.32 MHz (NTSC)
14.19 MHz (PAL)

IC036 ㉔ REC/PB

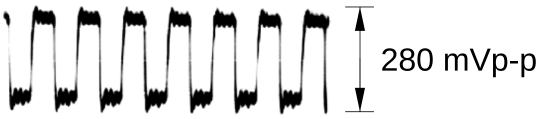
⑧



3.58 MHz (NTSC)
4.43 MHz (PAL)

IC036 ⑰ REC/PB

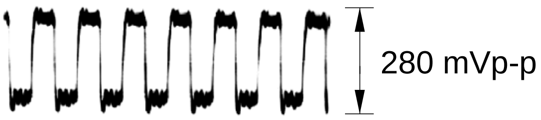
⑨



3.58 MHz (NTSC)
4.43 MHz (PAL)

Q004 Ⓔ REC/PB

⑩

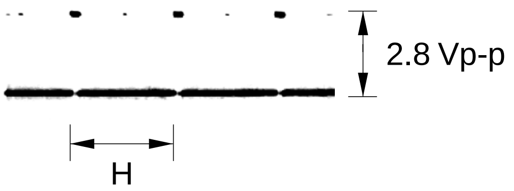


3.58 MHz (NTSC)
4.43 MHz (PAL)

Q006 Ⓔ REC/PB

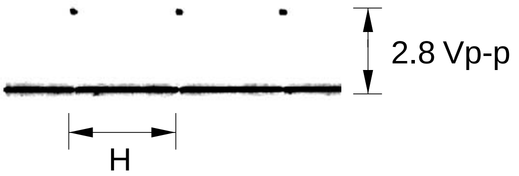
VD-032 BOARD (2/8)

⑪



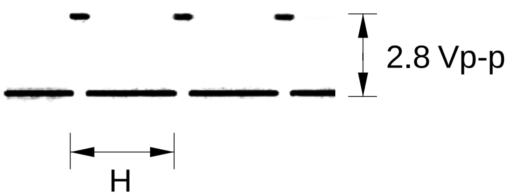
IC045 ⑬ REC/PB

⑫



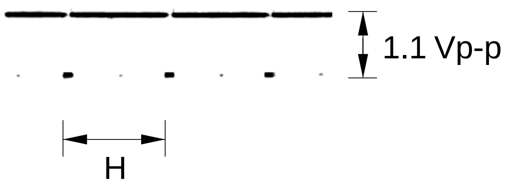
IC048 ⑩ REC/PB (NTSC)
IC048 ⑬ REC/PB (PAL)

⑬



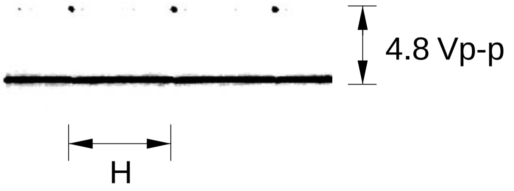
IC055 ④ REC/PB

⑭



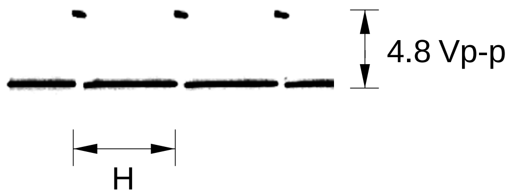
Q005 Ⓔ REC/PB

⑮



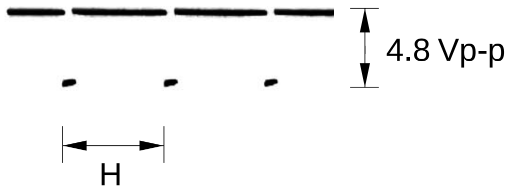
IC025 ⑪ REC/PB

⑯



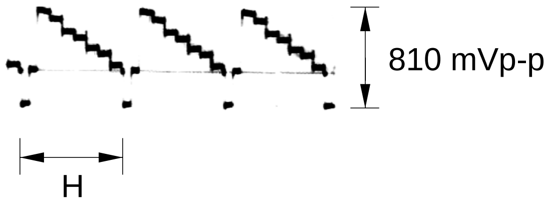
IC025 ⑧ REC/PB

⑰



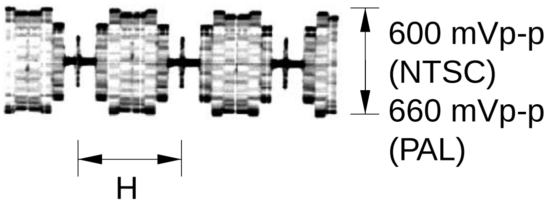
IC025 ⑥ REC/PB

⑱



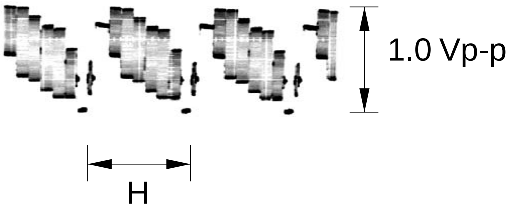
IC203 ⑦ REC

⑲



IC204 ⑦ REC

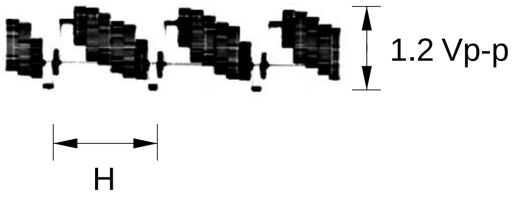
⑳



Q206 Ⓑ REC

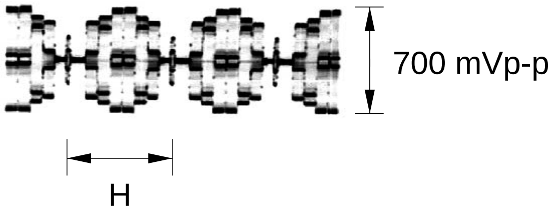
VD-032 BOARD (3/8)

㉑



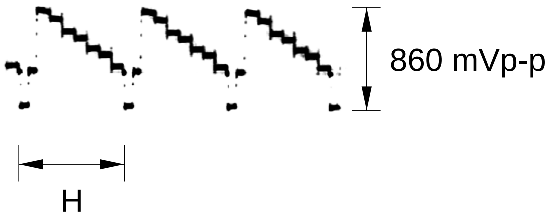
IC215 ② REC

㉒



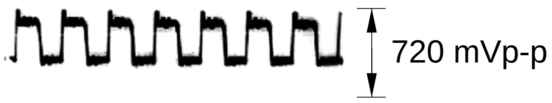
IC215 ⑦ REC

㉓



IC215 ⑨ REC

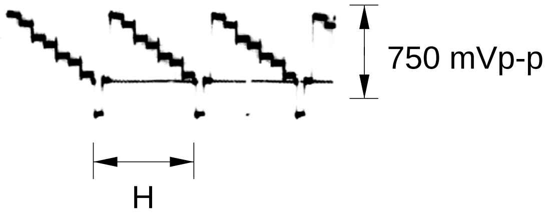
㉔



3.58 MHz (NTSC)
4.43 MHz (PAL)

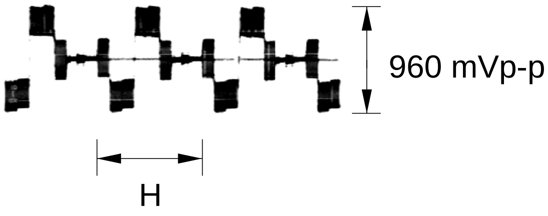
IC215 ㊲ REC/PB

㉕



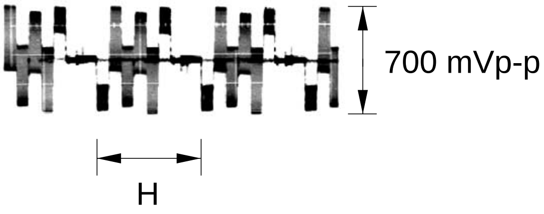
IC220 ㉕ REC

㉖



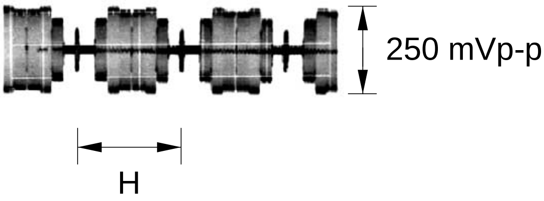
IC220 ⑳ REC

㉗



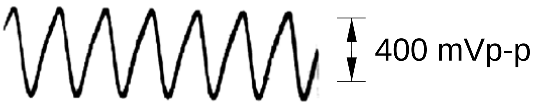
IC220 ⑲ REC

㉘



IC220 ⑤ REC

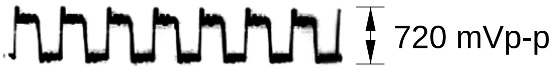
㉙



14.32 MHz (NTSC)
17.734 MHz (PAL)

IC220 ⑫ REC/PB

㉚

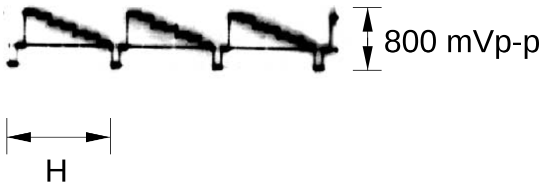


3.58 MHz (NTSC)
4.43 MHz (PAL)

TP201 REC/PB

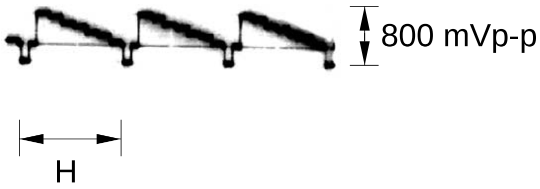
VD-032 BOARD (4/8)

㉛



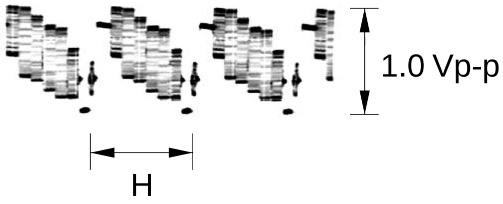
Q204 Ⓑ REC

㉜



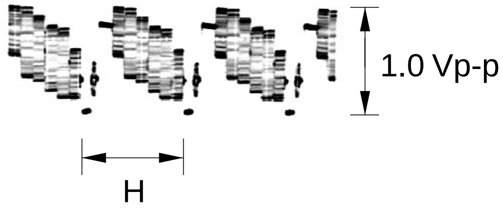
Q219 Ⓔ REC

㉝



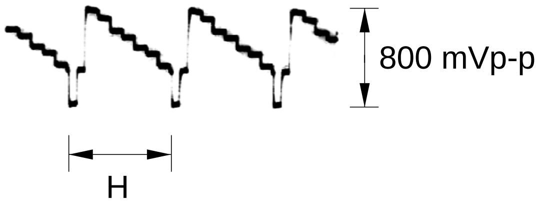
IC201 ⑦ REC

㉞



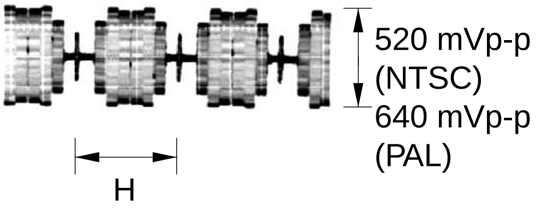
IC202 ③ REC

㉟



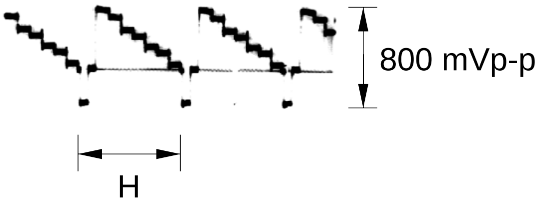
IC207 ⑦ REC

㊱



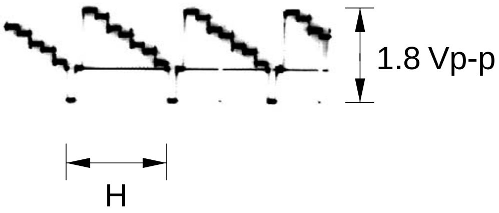
IC211 ⑦ REC

㊲



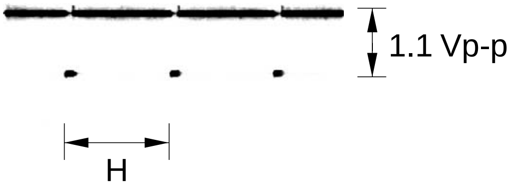
IC214 ① REC

㊳



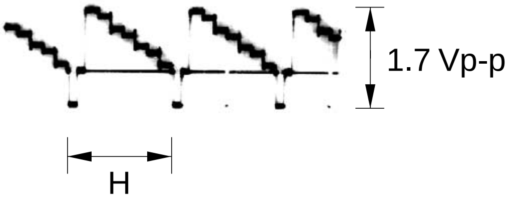
IC221 ① REC

㊴



Q242 Ⓔ PB

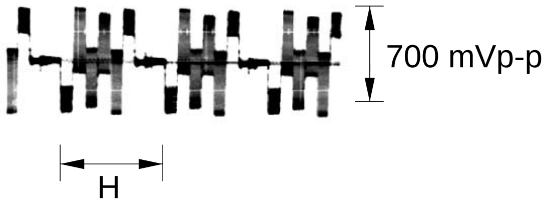
㊴



Q242 Ⓔ REC

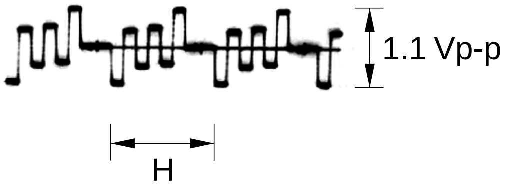
VD-032 BOARD (5/8)

㊵



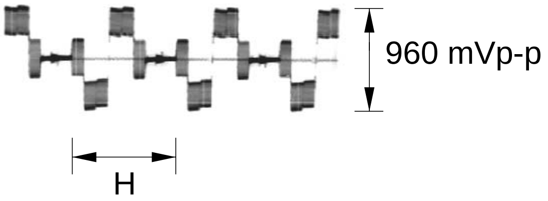
Q220 Ⓑ REC

㊶



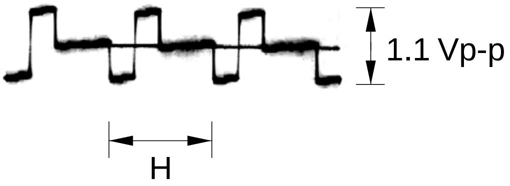
IC226 ① REC

㊷



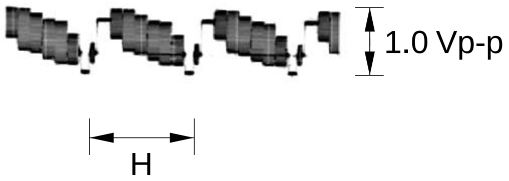
Q221 Ⓑ REC

㊸



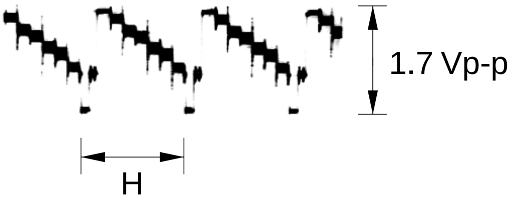
IC227 ① REC

㊹



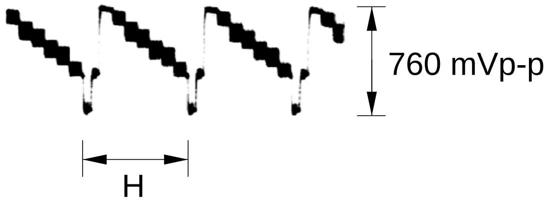
Q1501 Ⓑ REC

㊺



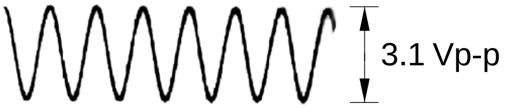
IC1501 ⑱ REC

㊻



IC1501 ⑰ REC

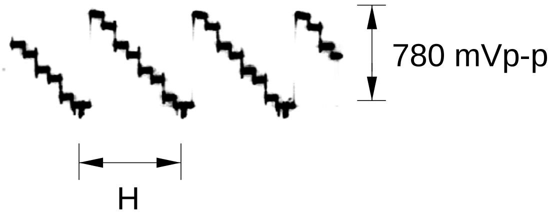
㊼



3.58 MHz (NTSC)
4.43 MHz (PAL)

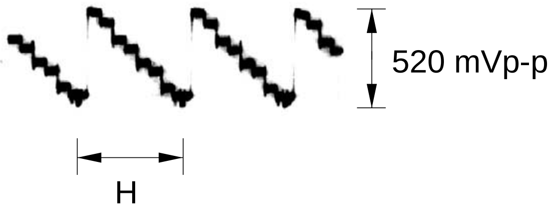
IC1501 ㉛ REC/PB

㊽



Q2003 Ⓑ REC/PB

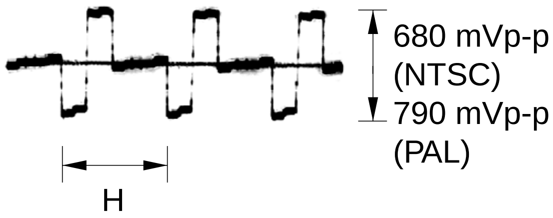
㊾



Q2021 ⑥ REC/PB

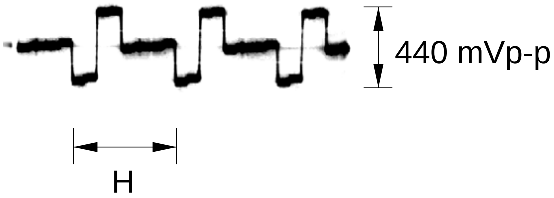
VD-032 BOARD (6/8)

㊿



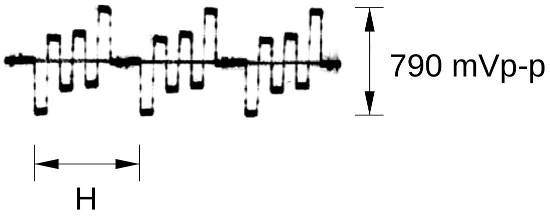
Q2001 Ⓑ REC/PB

(51)



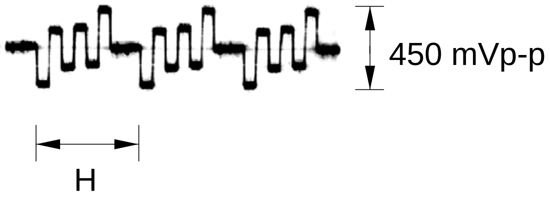
Q2026 ⑥ REC/PB

(52)



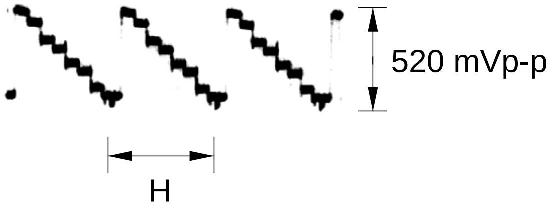
Q2002 Ⓑ REC/PB

(53)



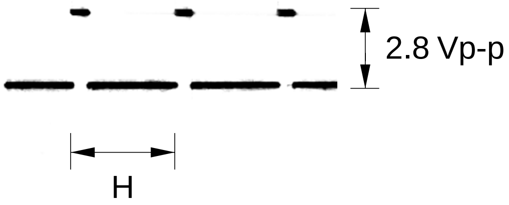
Q2027 ⑥ REC/PB

(54)



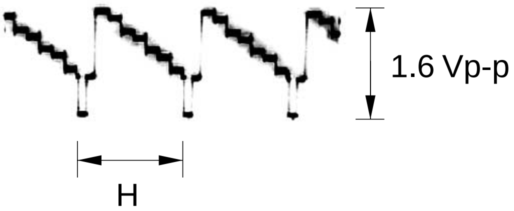
IC2008 ② REC/PB

(55)



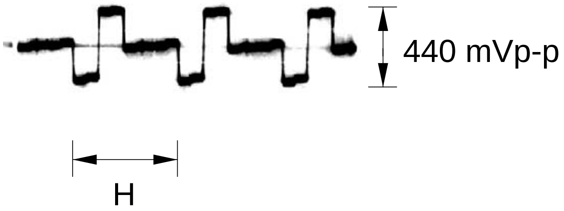
IC2008 ⑥ REC/PB

(56)



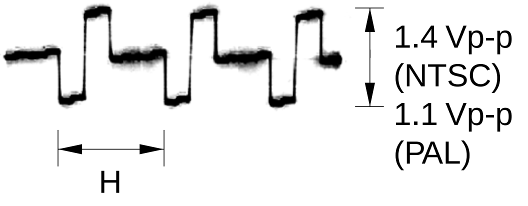
IC2019 ⑪, ⑬ REC/PB

(57)



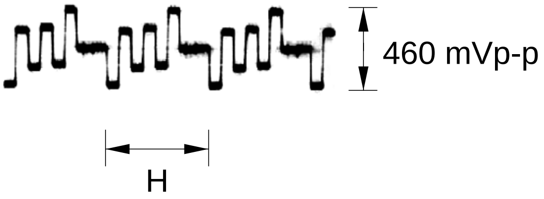
IC2011 ③ REC/PB

(58)



IC2020 ⑬ REC/PB

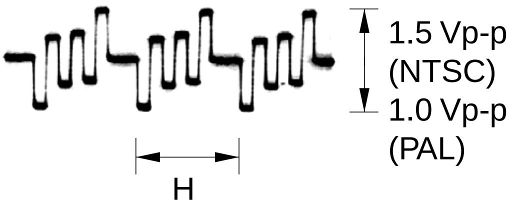
(59)



IC2012 ③ REC/PB

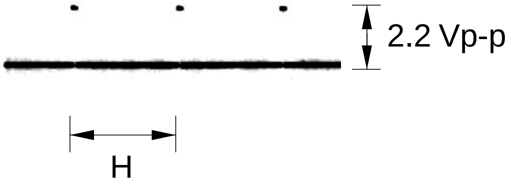
VD-032 BOARD (7/8)

(60)



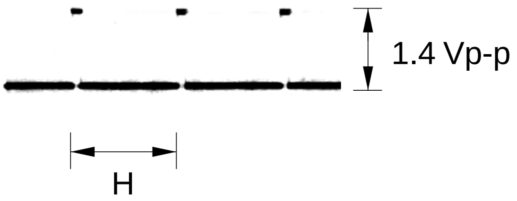
IC2021 ⑬ REC/PB

(61)



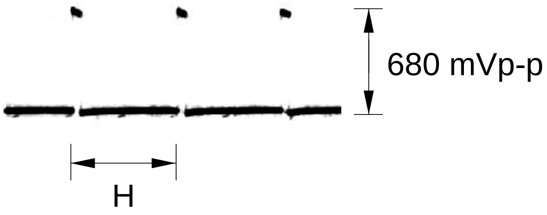
Q2005 ⑤ REC/PB

(62)



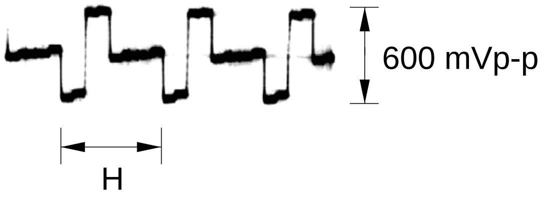
Q2004 ⑤ REC/PB

(63)



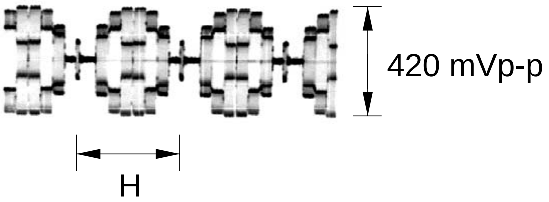
Q2014 ③ REC/PB

(64)



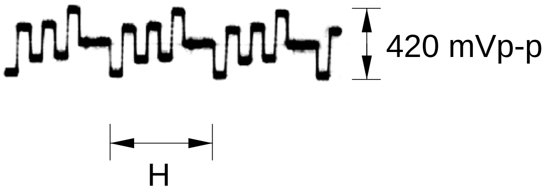
IC2010 ㉔ REC/PB

(65)



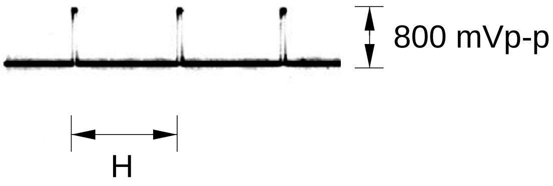
IC2010 ⑱ REC/PB

(66)



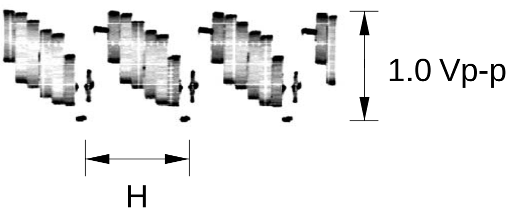
IC2010 ① REC/PB

(67)



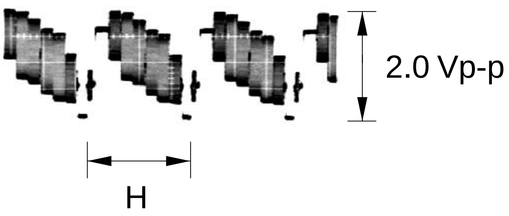
IC2010 ③ REC/PB

(68)



IC2017 ① REC/PB

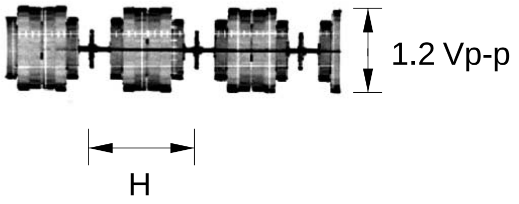
(69)



IC2022 ⑬ REC/PB

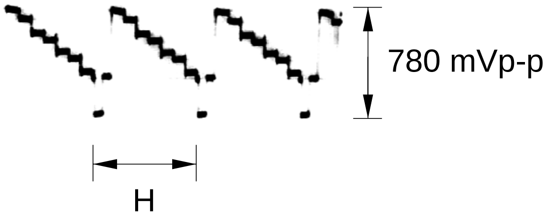
VD-032 BOARD (8/8)

(70)



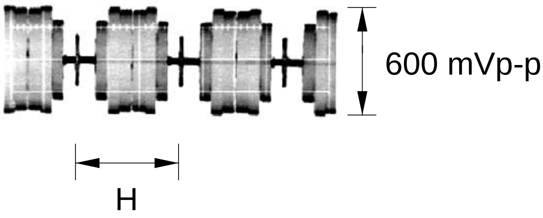
IC2023 ⑬ REC/PB

(71)



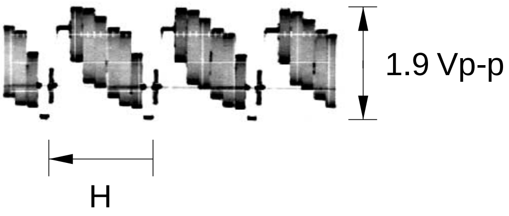
Q2020 ② REC/PB

(72)



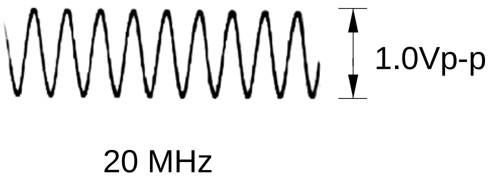
Q2022 Ⓑ REC/PB

(73)



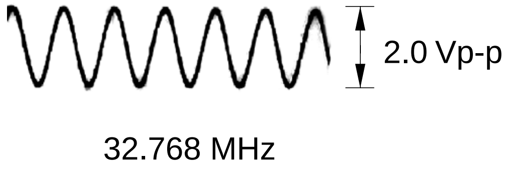
IC2015 ⑬ REC/PB

(74)



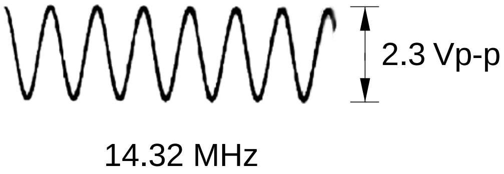
IC713 ㊶ REC/PB

(75)



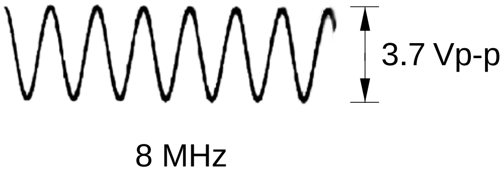
IC713 (52) REC/PB

(76)



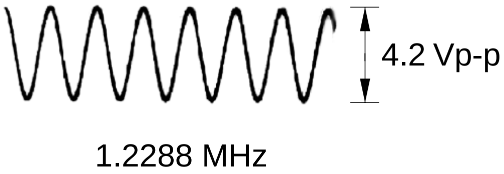
IC715 ③ REC/PB

(77)



IC511 ⑦ REC/PB

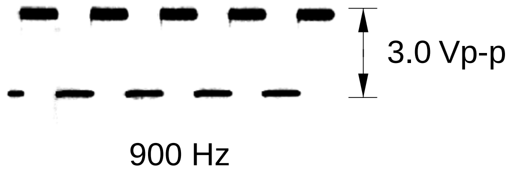
(78)



IC503 ② REC/PB

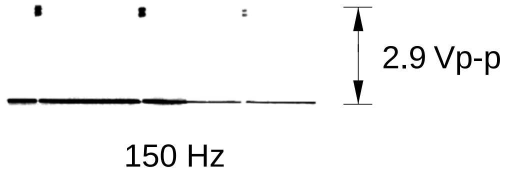
CM-59 BOARD

①



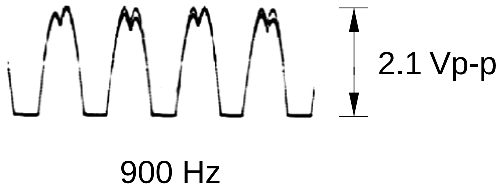
IC500 (60) REC/PB

②



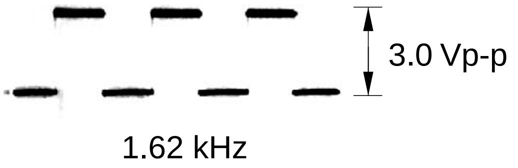
IC500 ④ REC/PB

③



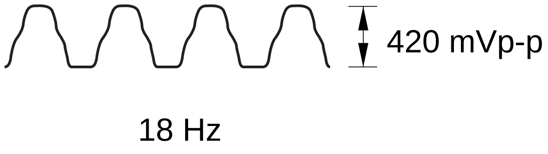
IC501 ②, ⑱, ㉓ REC/PB

④



IC400 ㉔ REC/PB

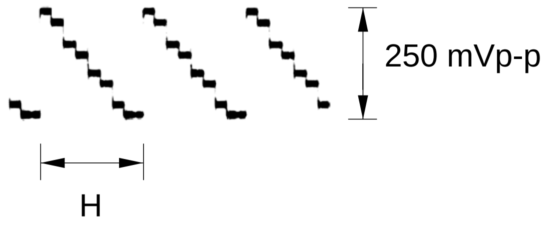
⑤



IC101 ⑤, ⑦, ⑨ REC/PB

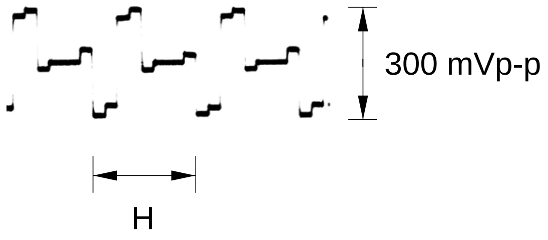
PD-170 BOARD (1/2)

①



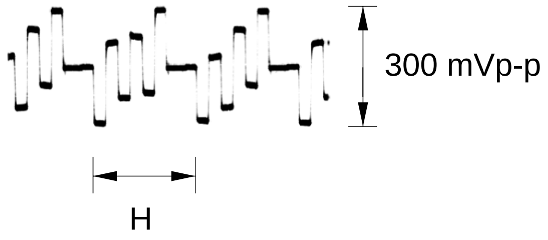
IC802 ⑧ REC/PB

②



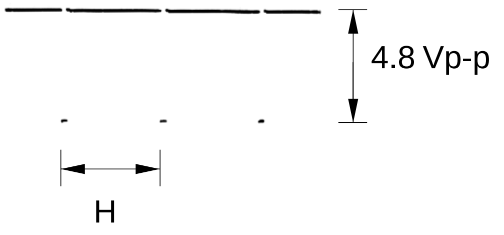
IC802 ⑨ REC/PB

③



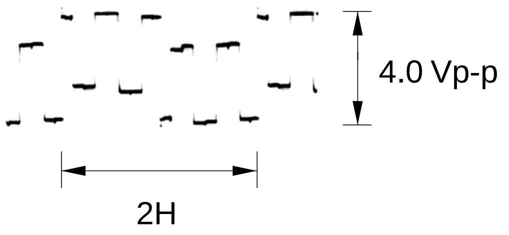
IC802 ⑩ REC/PB

④



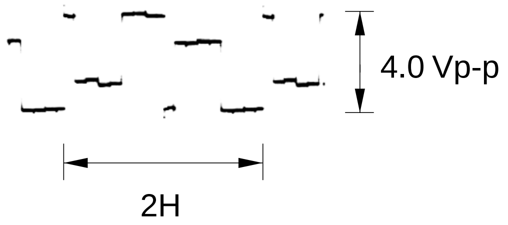
IC802 ⑭ REC/PB

⑤



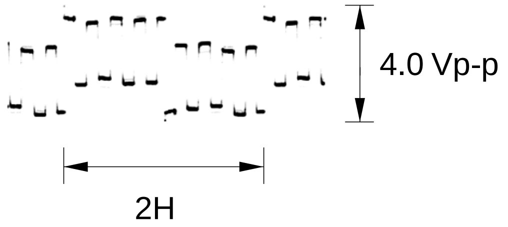
IC802 ⑳ REC/PB

⑥



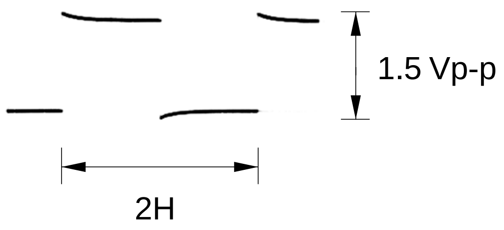
IC802 ㉒ REC/PB

⑦



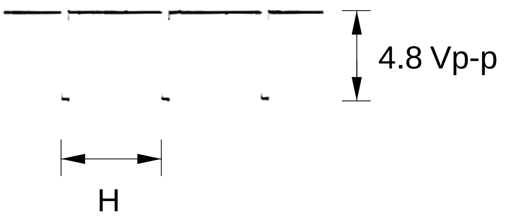
IC802 ㉔ REC/PB

⑧



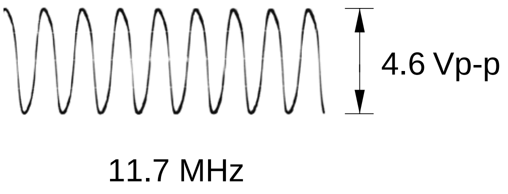
IC802 ㊶ REC/PB

⑨



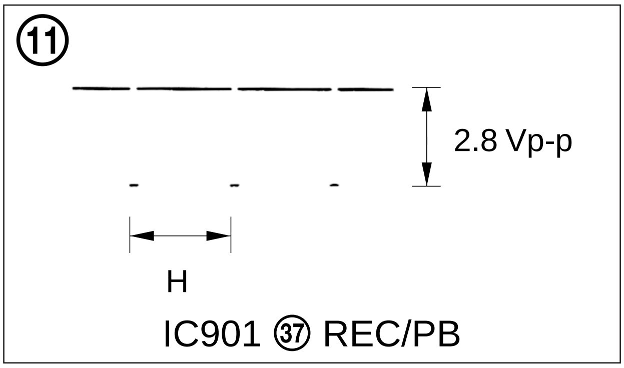
IC901 ④ REC/PB

⑩



IC901 ㉖ REC/PB

PD-170 BOARD (2/2)



4-5. PARTS LOCATION

no mark : SIDE A
* mark : SIDE B

RP-234 BOARD

	CN101	B-5
	CN201	A-5
	CN202	B-2
	CN203	B-4
	IC101	B-5
	IC102	B-4
*	IC201	A-4
*	IC301	B-2
*	Q201	B-3
*	Q202	B-4
*	Q203	B-5

JC-21 BOARD

*	CN1100	B-1
	CN1101	B-11
*	CN4400	D-1
	CN4401	D-6
	CN4402	D-5
	CN5005	D-10
	CN6001	A-8
*	CN6002	A-7
	CN7001	B-4
	CN7002	A-3
*	CN8001	D-8
*	D2201	C-7
	D4400	B-6
*	D5001	C-4
	IC1000	D-12
	IC1001	C-12
	IC1002	C-12
	IC1100	D-5
	IC1101	D-10
*	IC1102	C-10
*	IC1103	C-11
*	IC1104	C-12
	IC1105	A-9
	IC1106	B-10
	IC1107	C-10
*	IC1108	A-9
*	IC1109	B-9
*	IC1110	D-9
	IC1111	A-11
	IC1112	B-12
	IC1113	B-2
*	IC2200	C-8
*	IC2202	C-5
*	IC2203	D-5
*	IC2204	B-7
	IC2208	C-9
*	IC2209	C-9
	IC2210	D-9
	IC2211	D-9
	IC2212	D-9
	IC2213	D-9
*	IC2214	C-9
*	IC2215	B-9
	IC3300	B-8
	IC3301	D-8
	IC3302	D-8
	IC3303	B-6
	IC4400	B-5
	IC4401	D-4
	IC4402	D-2
*	IC5001	C-4
*	IC5002	D-5
	IC5003	D-6
	IC5006	D-8
*	IC5007	D-4
*	IC5008	D-6
*	IC6001	B-6
*	IC6003	A-4
*	IC6004	A-6
	Q1100	D-11
	Q1101	B-11
	Q1103	D-11
	Q1104	B-11
	Q1109	C-11
	Q1111	C-11
	Q1112	C-11
	Q1114	C-11
	Q1116	D-10
*	Q1117	A-11
*	Q1118	B-12
*	Q1119	C-12
*	Q1120	A-11
*	Q1121	B-11
*	Q1122	B-11
*	Q1123	A-10
*	Q1124	B-11
*	Q1125	C-11
*	Q1126	A-10
*	Q1127	B-11
*	Q1128	C-11
	Q1129	A-11
	Q1130	A-11
	Q1131	B-3
	Q1132	B-3
	Q2200	C-8
	Q2201	C-7
*	Q2202	A-9
*	Q2203	D-6
	Q3300	B-9
	Q3301	B-9
	Q3302	B-9
*	Q5001	C-4
*	Q5002	C-4
*	Q6003	A-4
*	Q6004	A-4
*	Q6005	A-4
	Q6011	C-5
	Q6012	C-5

DI-73 BOARD

	CN9500	A-5
*	D7301	D-9
*	D7302	D-7
*	IC7000	A-9
*	IC7001	A-7
*	IC7002	A-9
*	IC7003	A-7
*	IC7004	B-9
*	IC7005	B-9
*	IC7006	B-7
*	IC7007	B-8
*	IC7008	C-9
*	IC7009	C-8
*	IC7010	C-9
*	IC7011	C-8
*	IC7013	C-9
*	IC7014	D-8
*	IC7016	D-9
*	IC7018	D-8
*	IC7020	C-6
*	IC7021	D-6
	IC8000	D-7
	IC8001	D-7
	IC8002	D-7
	IC8003	D-9
	IC8004	B-8
	IC8005	B-8
	IC8006	B-9
	IC8007	A-9
	IC8008	B-8
	IC8009	C-11
	IC8010	B-7
	IC8011	B-7
	IC8201	B-10
	IC9000	C-2
	IC9001	B-1
*	IC9004	D-1
	IC9005	D-4
*	IC9006	D-1
	IC9007	B-2
	IC9008	C-4
	IC9009	D-4
	IC9010	B-3
*	IC9011	A-4
*	IC9012	D-4
*	IC9013	D-2
*	IC9014	D-4
*	IC9015	B-4
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	IC9017	D-1
	IC9018	D-1
	IC9019	D-3
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*	IC9501	D-3
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	IC9504	C-5
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	IC9507	D-5
	IC9508	D-5
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	IC9517	C-5
	IC9518	D-5
	IC9519	D-5
*	Q7000	B-8
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*	Q7002	B-9
*	Q7003	B-7
*	Q7004	B-6
*	Q7005	B-5
*	Q7007	D-7
*	Q7008	D-7
	Q8000	B-9
	Q8001	C-7
	Q8201	C-9
	Q8202	C-8
	Q9000	B-1
	Q9001	B-1
	Q9002	B-2
	Q9003	B-2
	Q9004	B-3
	Q9005	B-3
*	Q9502	C-5

VD-032 BOARD

	CN201	D-10
*	CN202	D-10
*	CN203	E-10
*	CN501	C-10
*	CN502	B-10
*	CN701	B-10
*	CN702	C-1
*	CN703	A-1
*	CN704	G-1
*	CN705	F-1
	CN707	D-3
*	CN709	A-1
*	CN904	G-8
*	CN905	G-8
	CN1501	B-5
*	CN1502	E-1
*	CN1503	D-1
*	CN1504	G-1
	CN1625	E-7
	CN1626	F-7
*	CN1627	G-10
*	CN1628	B-1
*	CN1629	E-10
	CN1983	A-10
*	CN1984	G-7
*	D001	B-4
*	D201	E-6
*	D202	E-7
*	D203	E-6
*	D205	E-8
*	D206	E-7
	D501	B-2
	D502	B-2
	D601	E-2
	D602	E-2
	D701	D-3
	D702	D-2
	D703	D-2
	D704	A-3
	D705	D-3
	D706	D-2
	D902	F-4
	D903	F-4
	D904	E-4
	D905	E-5
	D906	E-2
	D907	E-3
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*	D911	G-3
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*	D913	G-3
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	D916	F-3
	D917	G-4
	D918	E-2
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	D2002	A-8
	D2003	A-8
*	D2907	G-1
*	D2908	G-1
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	IC002	C-6
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	IC004	C-4
	IC005	A-5
	IC006	A-5
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	IC012	C-6
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	IC016	C-4
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	IC019	D-5
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	IC023	C-5
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	IC032	C-6
	IC033	C-5
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	IC039	D-6
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	IC222	D-7
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	IC224	E-7
	IC225	D-6
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	IC228	D-7
	IC229	D-6
	IC502	B-1
	IC503	A-1
	IC506	B-2
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	IC621	E-2
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	IC705	D-3
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	IC709	D-2
	IC710	D-2
	IC711	B-3
	IC712	C-1
	IC713	C-2
	IC714	D-1
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	IC2003	B-7
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	IC2019	D-9
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	IC2021	C-9
	IC2022	D-9
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*	Q216	E-9
	Q217	D-9
	Q218	D-9
*	Q219	C-8
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*	Q221	D-9
*	Q222	D-9
*	Q223	D-9
*	Q224	D-8
*	Q225	D-8
*	Q226	C-7
*	Q227	D-9
*	Q228	C-9
*	Q231	D-8
*	Q232	D-8
*	Q233	E-7
*	Q234	C-7
*	Q236	D-8
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	Q238	E-7
*	Q239	D-7
*	Q240	C-7
*	Q242	C-7
	Q501	A-1
*	Q503	C-10
*	Q504	C-10
	Q505	A-2
*	Q506	C-10
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	Q508	A-2
	Q601	D-1
	Q602	D-1
	Q603	G-1
	Q604	G-1
	Q605	E-6
	Q606	E-6
	Q607	E-6
	Q608	F-2
	Q609	F-2
*	Q621	F-2
*	Q622	F-2
*	Q623	F-3
	Q701	D-2
*	Q702	C-3
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*	Q705	B-3
*	Q706	C-1
	Q707	B-3
	Q708	D-2
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*	Q710	E-1
	Q711	D-1
	Q712	D-1
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	Q921	E-2
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	Q933	E-2
	Q934	G-3
	Q937	G-3
	Q938	F-4
	Q939	F-2
	Q940	G-4
	Q941	G-4
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	Q1627	G-6
	Q1628	G-6
	Q1629	G-7
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	Q1631	F-7
	Q1632	F-7
	Q1633	F-7
	Q1634	F-7
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	Q1999	E-2
*	Q2001	A-7
*	Q2002	A-7
*	Q2003	A-6
	Q2004	B-6
	Q2005	B-6
*	Q2006	A-7
*	Q2007	A-7
*	Q2008	B-7
*	Q2009	B-7
*	Q2010	B-7
*	Q2011	A-8
*	Q2012	A-8
	Q2013	B-7
*	Q2014	B-7
*	Q2015	A-8
	Q2016	B-7
*	Q2017	B-8
*	Q2018	A-8
*	Q2019	A-8
*	Q2020	C-8
*	Q2021	B-8
*	Q2022	B-8
	Q2023	A-8
	Q2024	A-8
*	Q2025	B-8
	Q2026	A-8
	Q2027	A-8
*	Q2028	C-8
	Q2029	A-8
	Q2030	A-8
*	Q2031	A-9
*	Q2032	A-9
*	Q2033	B-9
*	Q2034	B-9
*	Q2035	B-9
*	Q2036	D-10
	Q2037	C-10
*	Q2038	C-10

CM-59 BOARD

	CN001	A-5
*	CN100	A-6
	CN200	A-2
	CN201	A-1
	CN300	A-4
	CN400	A-2
	CN500	A-3
	CN501	A-4
*	D101	B-5
*	D102	B-4
*	D103	B-5
*	D104	B-5
	IC100	B-4
*	IC101	A-5
	IC102	A-6
*	IC200	B-1
	IC202	B-2
	IC300	A-4
	IC400	A-2
*	IC500	B-3
	IC501	A-3
*	Q100	B-5
*	Q101	B-4
*	Q102	B-5
*	Q103	B-5
*	Q104	B-4
*	Q105	B-4
*	Q200	B-2
	Q201	A-2
*	Q301	A-3
*	Q302	A-3

MD-76 BOARD

	CN001	A-1
	CN002	A-2
	CN003	G-6
*	D001	D-11
	IC001	D-5
	IC002	D-2
	IC003	C-5
*	IC004	F-12
*	IC005	F-10
*	Q001	C-8
*	Q002	C-14

FR-183 BOARD

*	CN401	C-3
*	CN402	C-7
*	D401	C-8
*	D402	C-8
*	D403	B-8
	D404	C-6
	D405	C-6
	D406	C-7
	D407	C-8
	D408	C-5
	D409	C-7
	D410	C-7
	D411	C-8
	D412	B-7
	D413	B-6
	D414	C-4
	D415	C-4
	D416	C-5
	D417	B-7
*	D418	C-2
	D421	B-8
	D422	A-8
	D423	B-1
	D424	B-4
*	D425	C-6
	D426	C-5
	D427	B-1
	D428	B-1
	D430	B-4
*	D432	C-2
*	D433	C-2
*	D434	C-2
*	D435	C-2
*	D436	C-2
*	D437	C-2
	D438	A-1
	D439	A-8
*	D441	C-4
	D442	A-1
	D443	B-5
	D444	C-5
	D445	C-7
	D446	C-7
	D447	C-8
	D449	B-5
	D450	C-7
	D451	C-8
	D452	C-6
*	IC401	C-3
*	IC403	C-7
*	IC404	C-3
*	Q401	B-8
*	Q402	B-7
*	Q403	B-7
*	Q404	B-7
*	Q405	B-6
*	Q406	B-6
*	Q407	B-6
*	Q408	B-5
*	Q409	C-5
*	Q410	C-5
*	Q411	C-4
*	Q412	C-4
*	Q413	C-5
*	Q414	C-5
*	Q415	C-5
*	Q416	C-4
*	Q417	C-4
*	Q418	C-5

PD-170 BOARD

	CN801	A-3
	CN802	A-2
	CN901	C-2
	D801	A-1
*	D902	B-2
*	D903	B-1
	IC801	B-2
	IC802	B-1
*	IC901	B-2
*	IC902	B-1
*	Q901	B-1
*	Q902	C-1
*	Q903	C-1
*	Q904	C-1

JK-216 BOARD

*	CN102	A-1
*	CN103	A-4
*	CN104	A-4
*	CN105	A-3
*	D101	A-1
*	D102	A-1
*	D103	A-1
*	D108	A-1
*	D109	A-2
*	D110	B-1
*	D111	A-2
*	D112	B-2
*	D113	A-3
*	D114	B-3
*	D115	A-4
*	D116	B-4
*	D117	A-5
*	D118	B-5
*	D119	B-5
*	D120	A-5
*	IC101	B-2
*	IC102	C-2

XL-005 BOARD

*	CN251	A-2
*	CN253	B-1
*	CN255	B-3
*	CN257	B-5
*	CN259	B-7
*	D251	A-1
*	D252	A-1
*	D253	A-2
*	D254	A-2
*	D255	A-3
*	D256	A-3
*	D257	A-4
*	D258	A-4

ACS1581-MA BOARD

CN101	A-5
CN201	A-2
D101	C-6
D102	B-4
D103	B-4
D104	C-3
D105	B-3
D106	B-4
D201	B-2
D203	C-2
IC101	B-4
IC102	A-3
IC201	C-1
Q101	C-4
Q201	C-2

SECTION 5
ADJUSTMENTS

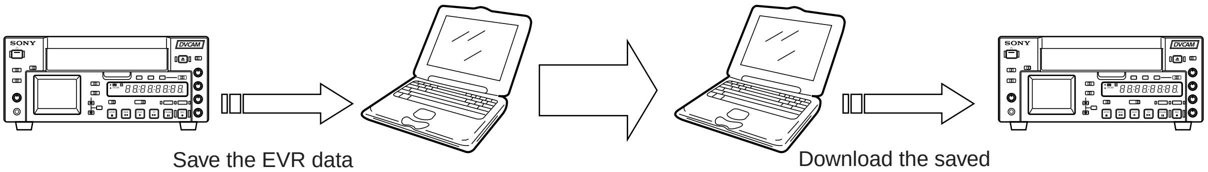
1. Before starting adjustment

EVR Data Re-writing Procedure When Replacing Board

The data that is stored in the repair board, is not necessarily correct.
Perform either procedure 1 or procedure 2 or procedure 3 when replacing board.

Procedure 1

Save the EVR data of the machine in which a board is going to be replaced. Download the saved data after a board is replaced.


(Machine before starting repair)
PC
PC
(Machine after a board is replaced)
SONY
DVCAM
SONY
DVCAM

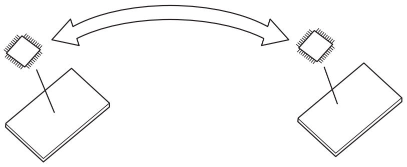
Save the EVR data to a personal computer.

Download the saved data to a machine.

Procedure 2

Remove the EEPROM from the board of the machine that is going to be repaired. Install the removed EEPROM to the replaced board.

Remove the EEPROM and install it.

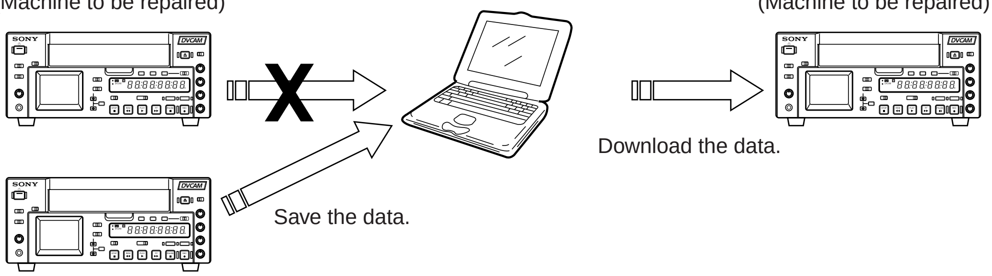


(Former board)

(New board)

Procedure 3

When the data cannot be saved due to defective EEPROM, or when the EEPROM cannot be removed or installed, save the data from the same model of the same destination, and download it.


(Machine to be repaired)
PC
(Machine to be repaired)
X
SONY
DVCAM

Download the data.

Save the data.

(The same model of the same destination)

After the EVR data is saved and downloaded, check the respective items of the EVR data.
(Refer to page 5-3 for the items to be checked)

1-1. Adjusting items when replacing main parts and boards

• Adjusting items when replacing main parts

When replacing main parts, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Replaced part																						
		Block replacement					Mounted part replacement																	
		Mechanism deck	Mechanism deck M901 (Drum assembly)	Mechanism deck M903 (Capstan motor)	LCD blockLCD901 (LCD panel)	LCD blockND901 (Fluorescent tube)	PR-234 board IC101 (TRW)	RP-234 board IC201 (TRF)	JC-21 board IC1108-1110 (A/D CONV.)	JC-21 board IC2204 (CLOCK GEN.)	JC-21 board IC3300 (VFD)	DI-73 board IC9000 (D/A CONV.)	VD-032 board IC214, 222 (VC AMP)	VD-032 board IC215 (Y/C SEP.)	VD-032 board IC220 (C DECODE)	VD-032 board IC2201, 2202 (VC DELAY)	VD-032 board IC2203 (VC AMP)	VD-032 board IC2004 (VC AMP)	VD-032 board IC2008 (Y BLANKING, SETUP ADD)	VD-032 board IC2007 (VC AMP)	VD-032 board IC2010 (C ENCODE)	VD-032 board IC2005, 2006 (VC AMP)	PD-170 board IC802 (RGB DRIVER)	PD-170 board IC901 (TIMING GEN.)
System control	Initialization of C, D, E page data																							
	Node unique ID No. input																							
Servo, RF	CAPSTAN FG adj.	●		●																				
	Switching position adj.	●	●																					
	RF-AGC adj.	●	●				●	●																
	CLK DELAY and AEQ adj.	●	●				●	●																
	PLL f_0 adj.	●	●				●	●																
Video	VFD SPCK adj.										●													
	A/D converter reference voltage adj.								●															
	Y/CR/CB clamp reference voltage adj.								●															
	AFC picture frame adj.									●														
	AFC adj.									●														
	Playback Y/C level adj.										●													
	Playback SYNC level adj.																	●						
	Playback blanking level adj. with 0% setup																		●					
	Playback Y/CR/CB signal level adj. with 0% setup											●				●			●			●		
	Playback CR/CB signal delay adj.															●						●		
	Encoder free run adj.																							
	Carrier balance adj.																●				●			
	Burst level adj.																●				●			
	Color level adj. with 0% setup																			●	●			
	SC_V phase adj.																							
	Playback blanking level adj. with 7.5% setup (*1)																		●					
	Playback Y/CR/CB signal level adj. with 7.5% setup (*1)																		●			●		
	Color level adj. with 7.5% setup (*1)																			●	●			
	Monitor terminal output level adj.										●													
	E-E blanking level adj.																		●					
	Component E-E Y/CR/CB signal level adj.												●			●			●			●		
	Component E-E CR/CB signal delay adj.															●								
	E-E color level adj.													●						●	●			
	Decoder free run adj.														●									
	Decoder HUE adj.														●									
	S video E-E Y/CR/CB signal level adj.													●	●									
	S video E-E CR/CB signal delay adj.													●										
	Composite E-E Y/CR/CB signal level adj.													●										
	H phase adj.																							
	E-E SC phase adj.																							
	Playback SC phase adj. (EXT SYNC OFF/ON)																							
LCD	VCO adj.																						●	●
	D range adj.																						●	
	Bright adj.																						●	
	Contrast adj.																						●	
	Color adj.																						●	
	V-COM level adj.																						●	
	V-COM adj.				●																		●	
	White balance adj.				●	●																	●	
Audio	Audio PAL data input (*2)																							
Mechanism	Tape path adj.	●	●	●																				

Table 5-1-1 (1)

• Adjusting items when replacing a board or EEPROM

When replacing a board or EEPROM, adjust the items indicated by ● in the following table.

Note:
*1: DSR-45 only
*2: DSR-45P only

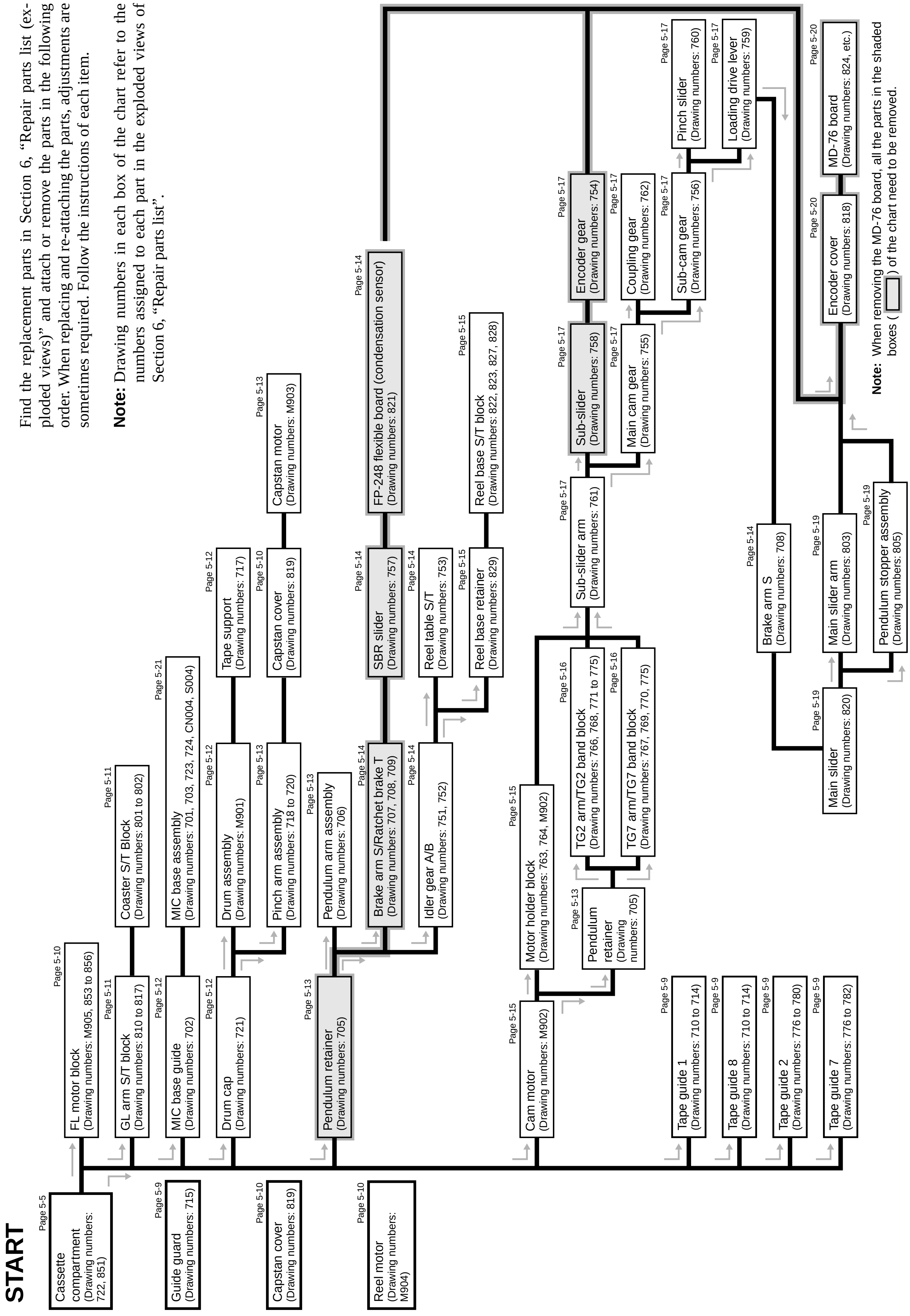
		Replaced part								
		Board replacement								
Adjustment Section	Adjustment	CM-59 board (COMPLETE)	RP-234 board (COMPLETE)	JC-21 board (COMPLETE)	DI-73 board (COMPLETE)	VD-032 board (COMPLETE)	PD-170 board (COMPLETE)	JC-21 board IC5006 (EEP ROM)	VD-032 board IC708 (EEP ROM)	Supporting
System control	Initialization of C, D, E page data			●		●		●	●	
	Node unique ID No. input			●				●		
Servo, RF	CAPSTAN FG adj.	●		●				●		●
	Switching position adj.			●				●		●
	RF-AGC adj.		●	●				●		●
	CLK DELAY and AEQ adj.		●	●				●		●
	PLL f_0 adj.		●	●				●		●
Video	VFD SPCK adj.			●				●		
	A/D converter reference voltage adj.			●				●		
	Y/CR/CB clamp reference voltage adj.			●				●		
	AFC picture frame adj.			●				●		
	AFC adj.			●				●		
	Playback Y/C level adj.			●				●		
	Playback SYNC level adj.					●			●	
	Playback blanking level adj. with 0% setup					●			●	
	Playback Y/CR/CB signal level adj. with 0% setup				●	●			●	
	Playback CR/CB signal delay adj.					●			●	
	Encoder free run adj.					●			●	
	Carrier balance adj.					●			●	
	Burst level adj.					●			●	
	Color level adj. with 0% setup					●			●	
	SC_V phase adj.					●			●	
	Playback blanking level adj. with 7.5% setup (*1)					●			●	
	Playback Y/CR/CB signal level adj. with 7.5% setup (*1)					●			●	
	Color level adj. with 7.5% setup (*1)					●			●	
	Monitor terminal output level adj.			●				●		
	E-E blanking level adj.					●			●	
	Component E-E Y/CR/CB signal level adj.					●			●	
	Component E-E CR/CB signal delay adj.					●			●	
	E-E color level adj.					●			●	
	Decoder free run adj.					●			●	
	Decoder HUE adj.					●			●	
	S video E-E Y/CR/CB signal level adj.					●			●	
	S video E-E CR/CB signal delay adj.					●			●	
	Composite E-E Y/CR/CB signal level adj.					●			●	
	H phase adj.					●			●	
	E-E SC phase adj.					●			●	
	Playback SC phase adj. (EXT SYNC OFF/ON)					●			●	
LCD	VCO adj.						●		●	
	D range adj.						●		●	
	Bright adj.						●		●	
	Contrast adj.						●		●	
	Color adj.						●		●	
	V-COM level adj.						●		●	
	V-COM adj.						●		●	
	White balance adj.						●		●	
Audio	Audio PAL data input (*2)			●				●		
Mechanism	Tape path adj.									

Table 5-1-1 (2)

1-2. Information (Mechanical Section)

Find the replacement parts in Section 6, "Repair parts list (exploded views)" and attach or remove the parts in the following order. When replacing and re-attaching the parts, adjustments are sometimes required. Follow the instructions of each item.

Note: Drawing numbers in each box of the chart refer to the numbers assigned to each part in the exploded views of Section 6, "Repair parts list".


START
Cassette compartment (Drawing numbers: 722, 851) Page 5-5
Guard guard (Drawing numbers: 715) Page 5-9
Capstan cover (Drawing numbers: 819) Page 5-10
Reel motor (Drawing numbers: M904) Page 5-10
FL motor block (Drawing numbers: M905, 853 to 856) Page 5-10
GL arm S/T block (Drawing numbers: 810 to 817) Page 5-11
Coaster S/T Block (Drawing numbers: 801 to 802) Page 5-11
MIC base guide (Drawing numbers: 702) Page 5-12
MIC base assembly (Drawing numbers: 701, 703, 723, 724, CN004, S004) Page 5-21
Drum cap (Drawing numbers: 721) Page 5-12
Drum assembly (Drawing numbers: M901) Page 5-12
Tape support (Drawing numbers: 717) Page 5-12
Pinch arm assembly (Drawing numbers: 718 to 720) Page 5-13
Capstan cover (Drawing numbers: 819) Page 5-10
Capstan motor (Drawing numbers: M903) Page 5-13
Pendulum retainer (Drawing numbers: 705) Page 5-13
Pendulum arm assembly (Drawing numbers: 706) Page 5-13
Brake arm S/Ratchet brake T (Drawing numbers: 707, 708, 709) Page 5-14
SBR slider (Drawing numbers: 757) Page 5-14
FP-248 flexible board (condensation sensor) (Drawing numbers: 821) Page 5-14
Idler gear A/B (Drawing numbers: 751, 752) Page 5-14
Reel table S/T (Drawing numbers: 753) Page 5-14
Reel base retainer (Drawing numbers: 829) Page 5-15
Reel base S/T block (Drawing numbers: 822, 823, 827, 828) Page 5-15
Cam motor (Drawing numbers: M902) Page 5-15
Motor holder block (Drawing numbers: 763, 764, M902) Page 5-15
Pendulum retainer (Drawing numbers: 705) Page 5-13
TG2 arm/TG2 band block (Drawing numbers: 766, 768, 771 to 775) Page 5-16
TG7 arm/TG7 band block (Drawing numbers: 767, 769, 770, 775) Page 5-16
Sub-slider arm (Drawing numbers: 761) Page 5-17
Sub-slider (Drawing numbers: 758) Page 5-17
Encoder gear (Drawing numbers: 754) Page 5-17
Main cam gear (Drawing numbers: 755) Page 5-17
Coupling gear (Drawing numbers: 762) Page 5-17
Sub-cam gear (Drawing numbers: 756) Page 5-17
Pinch slider (Drawing numbers: 760) Page 5-17
Loading drive lever (Drawing numbers: 759) Page 5-17
Tape guide 1 (Drawing numbers: 710 to 714) Page 5-9
Tape guide 8 (Drawing numbers: 710 to 714) Page 5-9
Tape guide 2 (Drawing numbers: 776 to 780) Page 5-9
Tape guide 7 (Drawing numbers: 776 to 782) Page 5-9
Brake arm S (Drawing numbers: 708) Page 5-14
Main slider (Drawing numbers: 820) Page 5-19
Main slider arm (Drawing numbers: 803) Page 5-19
Pendulum stopper assembly (Drawing numbers: 805) Page 5-19
Encoder cover (Drawing numbers: 818) Page 5-20
MD-76 board (Drawing numbers: 824, etc.) Page 5-20

Note: When removing the MD-76 board, all the parts in the shaded boxes (▨) of the chart need to be removed.

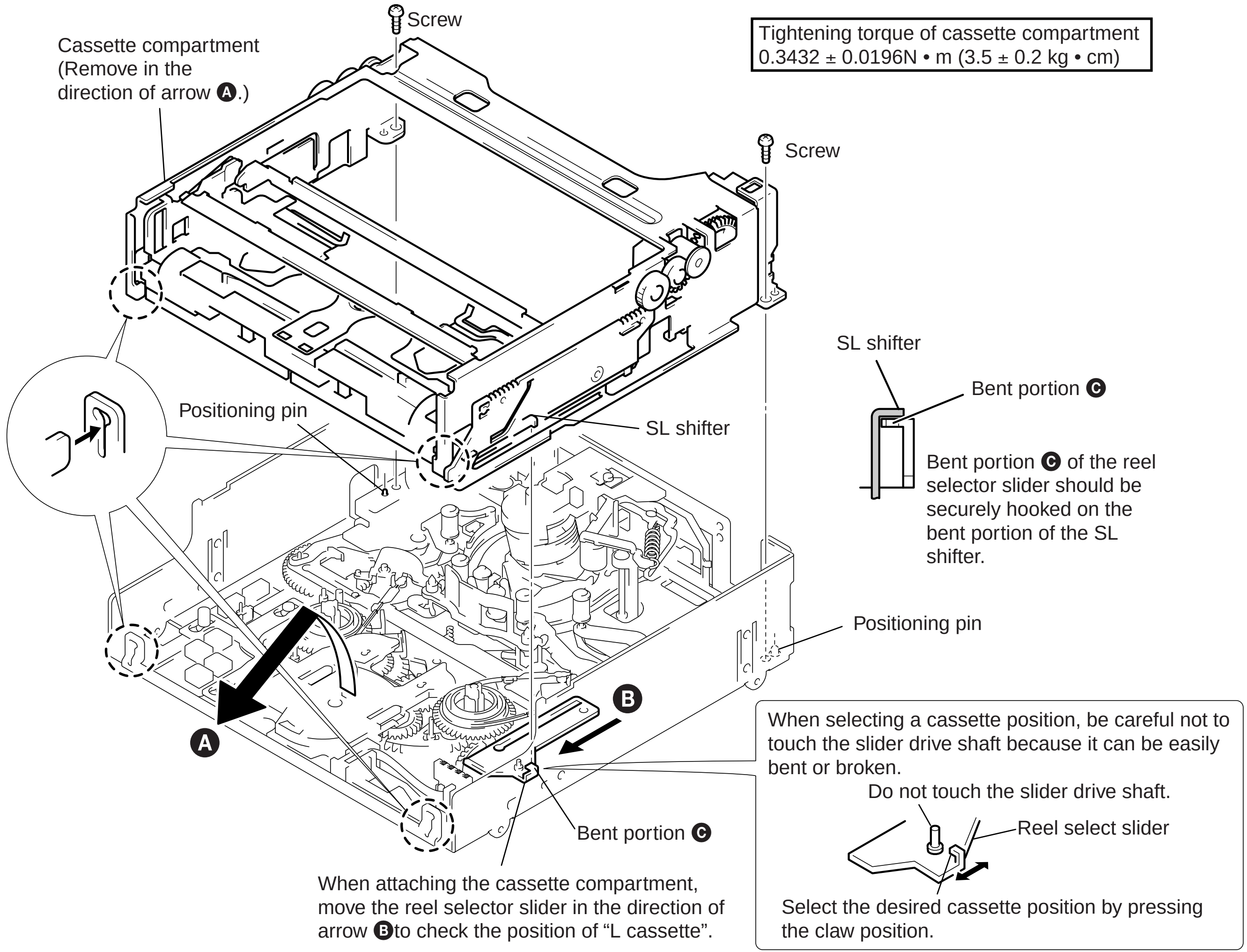
5-1. MECHANICAL SECTION ADJUSTMENTS

5-1-1. PARTS REPLACEMENT AND PREPARATION FOR ADJUSTMENT

1-1. ASSEMBLY/DISASSEMBLY OF CASSETTE COMPARTMENT

For details on disassembling the mechanism deck (R mechanism), refer to the Service Manual of the main unit in which the R mechanism is mounted.

Before attaching or removing the cassette compartment, check the position of “L cassette”.



Screw
Cassette compartment (Remove in the direction of arrow Ⓐ.)
Screw
SL shifter
Bent portion Ⓒ
Positioning pin
SL shifter
Positioning pin
Ⓑ
Ⓐ
Bent portion Ⓒ
Do not touch the slider drive shaft.
Reel select slider

Tightening torque of cassette compartment
0.3432 ± 0.0196N • m (3.5 ± 0.2 kg • cm)

Bent portion Ⓒ of the reel selector slider should be securely hooked on the bent portion of the SL shifter.

When selecting a cassette position, be careful not to touch the slider drive shaft because it can be easily bent or broken.

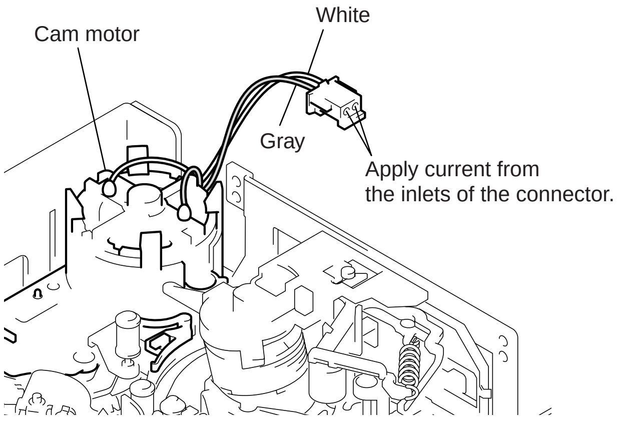
Select the desired cassette position by pressing the claw position.

When attaching the cassette compartment, move the reel selector slider in the direction of arrow Ⓑto check the position of “L cassette”.

1-2. HOW TO LOAD/UNLOAD

[Using the regulated power supply]

Note: Make sure to remove the connector of the cam motor from the board of the main unit and apply +5V current.



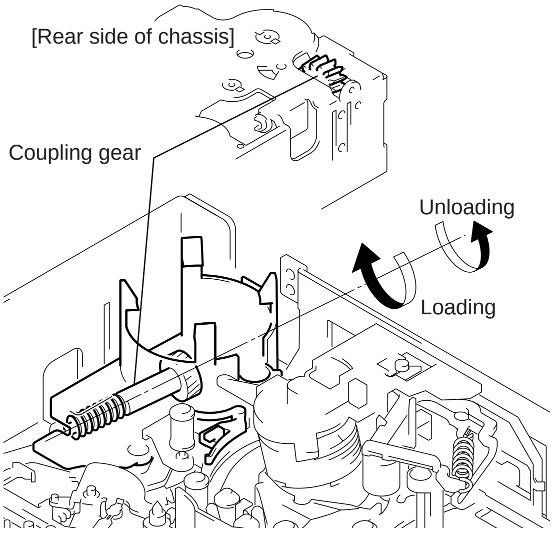
Cam motor
White
Gray
Apply current from the inlets of the connector.

Loading : Apply positive polarity (+) of power supply to the gray wire and negative polarity (–) of power supply to the white wire.
Unloading : Apply negative polarity (–) of power supply to the gray wire and positive polarity (+) of power supply to the white wire.

[Manual: No cam motor]

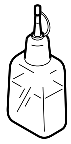
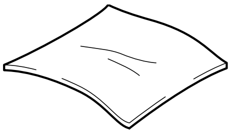
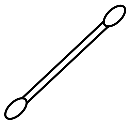
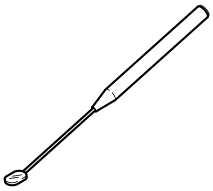
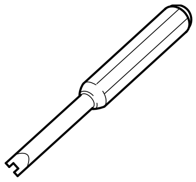
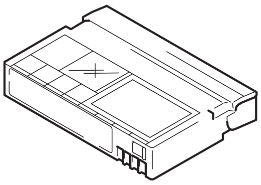
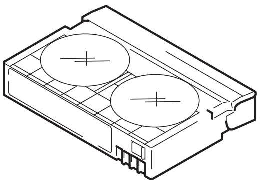
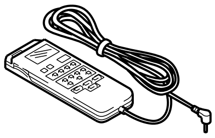
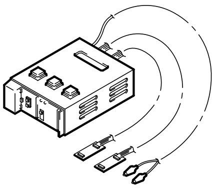
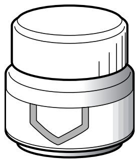
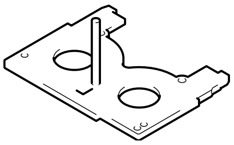
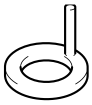
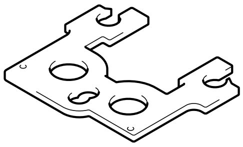
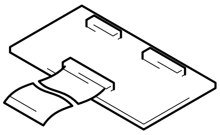
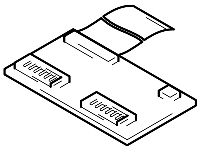
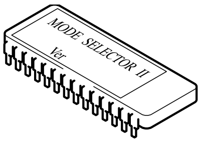
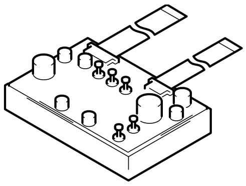
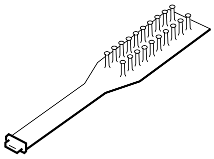
Note: Remove the cam motor from the motor holder while referring to “Information” on page 5-4.

Rotate the coupling gear by hand to load or unload.



[Rear side of chassis]
Coupling gear
Unloading
Loading

1-3. LIST OF SERVICE TOOLS

J-1. Cleaning fluid (9-919-573-01) 	J-2. Wiping cloth (7-741-900-53) 	J-3. Super fine applicator (Made by NIPPON APPLICATOR (P752D)) (J-2501-023-A) 	J-4. Mirror (Small oval type) (J-6080-840-A) 
J-5. Screwdriver for tape path (J-6082-026-A) 	J-6. Tracking tape (XH2-1A1) (8-967-999-03) 	J-7. Mini DV torque cassette (J-6082-360-A) 	J-8. Adjusting remote commander (RM-95) (remodeled partly) Note 1 (J-6082-053-B) 
J-9. Mode selector II (J-6082-282-B) 	J-10. Floil Grease (SG-941) (7-662-001-39) 	J-11. Cassette reference plate (J-6082-330-A) 	J-12. Reel reference plate (J-6082-331-A) 
J-13. TG 2/7 preset plate (J-6082-459-A) 	J-14. Relay board for tension regulator adjustment (J-6082-461-A) 	J-15. Mode selector conversion board (J-6082-460-A) 	J-16. ROM for Mode Selector (Cope with R mechanism: Note 2) (J-6082-314-E) 
J-17. Board for tension regulator adjustment (J-6082-359-A) 	J-18. CPC-8 jig (J-6082-388-A) 		

Note 1: If the micro processor IC in the adjustment remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

Note 2: The ROM makes mode selector II's version up to use it with R mechanism.

1-4. About Mode Selector II

• About Mode Selector II

4-1. OUTLINE

This unit is a mechanism drive tool which supplements the maintenance of each mechanism deck. Its functions are described below.

1. Manual test
A mode which drives the motor only while the switch is ON. It enables the operator to control the motor as desired.

2. Step test
A mode which drives the motor until the current condition detected by the sensor changes to another condition. It enables the movements made by the motor in each operation to be controlled while being detected.

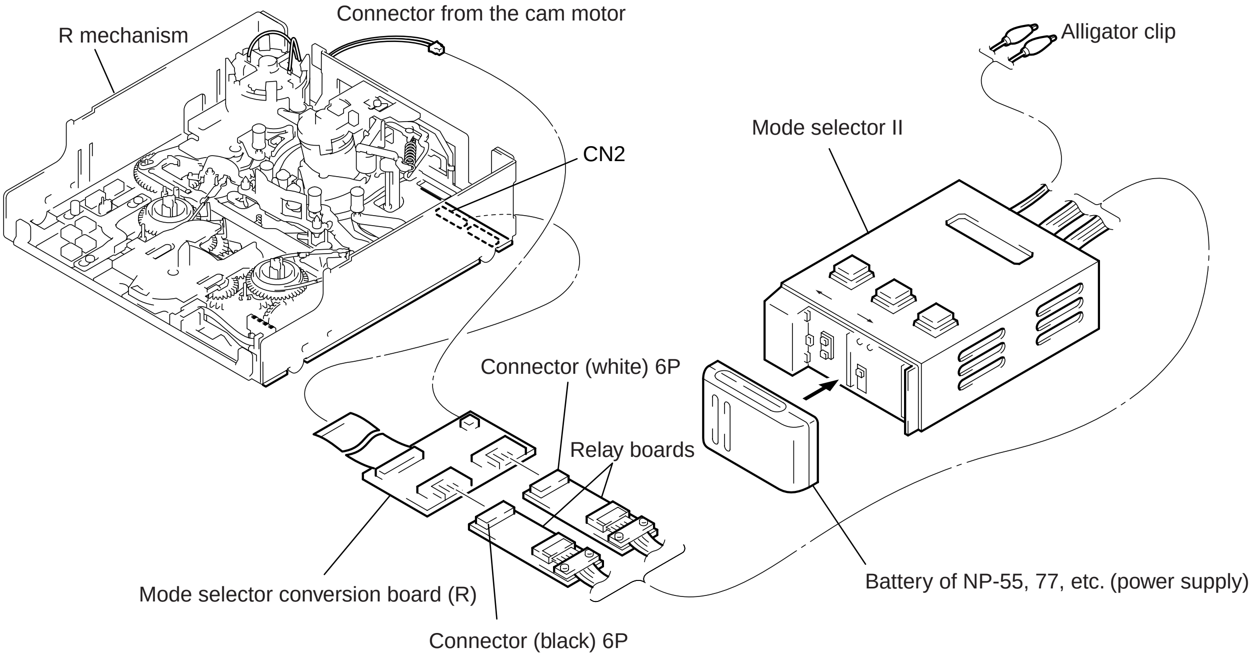
3. Auto test
A mode that checks if the mechanism operates normally according to the condition shift table recorded in the unit for each mechanism deck. All the conditions of the decks are checked through a series of operations.
An error message is displayed and operations are stopped if incorrect shifts and conditions are detected.

4-2. MECHANISM CONDITION (POSITION) SHIFTING ORDER LIST

After selecting the mechanism deck, select one of the two test modes other than the auto test, and press the RVS or FF button to specify the mechanism state (position).

Code / MD name					R mechanism
A	B	C	D		
0	1	1	1	1	ULE
0	0	1	1	2	DEW
1	0	1	1	3	LE
1	0	0	1	4	REW
1	0	1	0	5	FF
1	1	1	0	6	STOP
1	1	0	1	7	FWD / RVS

4-3. MODE SELECTOR II CONNECTION


R mechanism
Connector from the cam motor
Alligator clip
Mode selector II
CN2
Connector (white) 6P
Relay boards
Mode selector conversion board (R)
Battery of NP-55, 77, etc. (power supply)
Connector (black) 6P

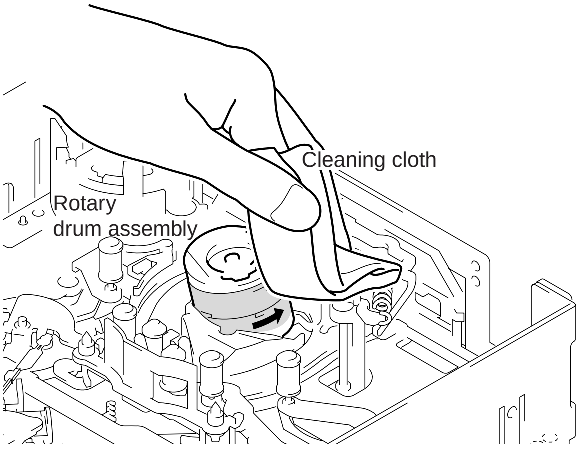
5-1-2. PERIODIC CHECK

- Carry out the following maintenance and periodic checks not only to fully display the functions and performance of the set, but also for the equipment and tape. After replacing, service the set as follows, regardless of the length of use.

2-1. CLEANING OF ROTARY DRUM ASSEMBLY

1. Press a wiping cloth (J-2) moistened with cleaning fluid (J-1) against the rotary drum assembly gently, and clean it while rotating the rotary drum assembly slowly with your finger in the counterclockwise direction.

Note: Do not rotate the motor on power or rotate the rotary drum assembly in the clockwise direction with your finger. The head tip will also be damaged if the wiping cloth is moved perpendicularly against it. Therefore, be sure to follow the above instructions when cleaning the rotary drum assembly.

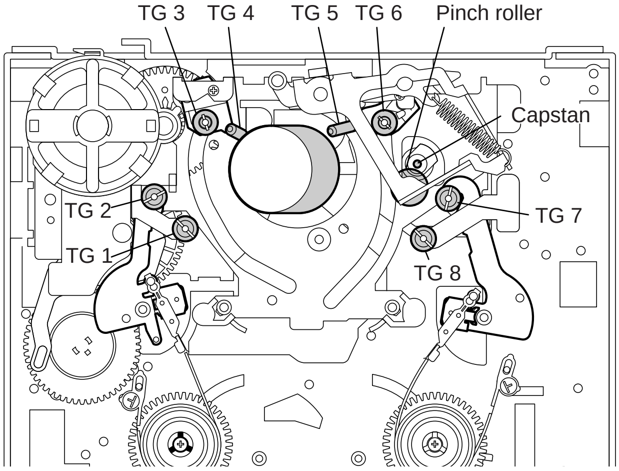


2-2. CLEANING OF TAPE PATH SYSTEM

1. Clean the tape path systems (TG1 to TG8 and capstan) and the lower drum using a super fine applicator (J-3) moistened with cleaning fluid.

Note: Make sure that no oil or grease of the link mechanisms sticks to the super file applicator (J-3).

Note: Do not use a applicator moistened with alcohol to the other guide cleaning. But clean the pinch roller using alcohol.



2-3. PERIODIC CHECKS

Location of Maintenance and Check		Hours of Use (H)										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Cleaning of tape path surface	○	○	○	○	○	○	○	○	○	○	Be careful of the oil.
	Cleaning and degaussing of rotary drum assembly	○	○	○	○	○	○	○	○	○	○	Be careful of the oil.
Driving System	Capstan (Bearing)	—	◎	—	◎	—	◎	—	◎	—	◎	Make sure that no oil gets on the tape path surface.
	Gear	—	◎	—	◎	—	◎	—	◎	—	◎	
	Cam motor (worm block)	—	◎	—	◎	—	◎	—	◎	—	◎	X-3946-702-1 (M902)
Performance Confirmation	Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD/RVS torque measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○ : Cleaning ◎: Appling grease ☆: Confirmation

Note: When overhauling, refer to the checks above and replace parts.

Note: Greasing

Always use the specified grease. If the viscosity differs, various problems may occur.
(Use SG-941 for all parts of the R mechanism.)

Check the quantity of grease when installing the parts which is needed to apply the grease. When replacing these parts, make sure to apply the specified amount of grease.

- FOIL (SG-941): Part No. 7-662-601-39

5-1-3. PARTS REPLACEMENT

• Precaution

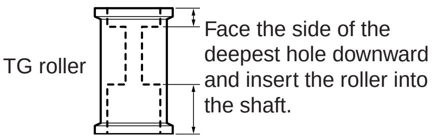
For details on disassembling the cabinets, boards and other parts, refer to "Section 2, Disassembly". For details on replacing parts (disassembly, assembly) of the mechanism deck, refer to "Information" on page 5-4.

3-1. TAPE GUIDE 1/8 AND GUIDE GUARD

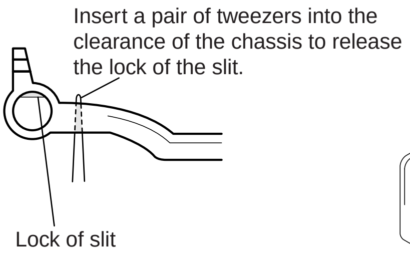
Disassembly/Assembly

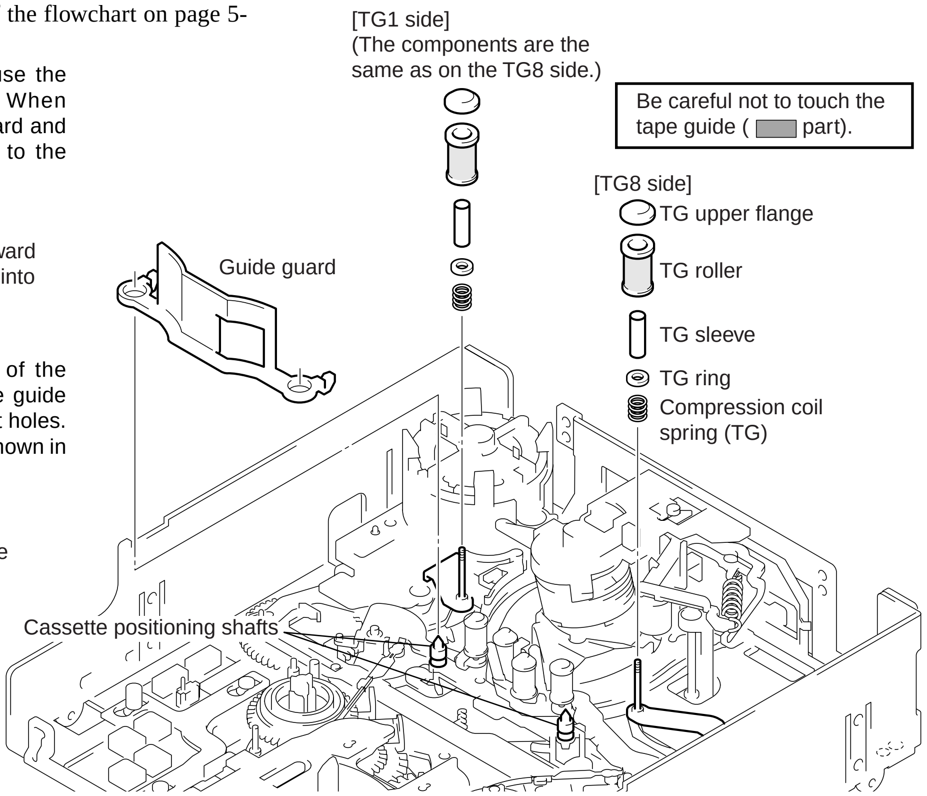
When the tape guide 1/8 is replaced or attached, perform each adjustment from Adjustment Start -2 of the flowchart on page 5-23.

To attach or remove the tape guide, use the screwdriver for the tape path (J-5). When attaching the TG rollers, check the upward and downward directions and attach them to the chassis shaft.


TG roller
Face the side of the deepest hole downward and insert the roller into the shaft.

The guide guard is fixed at each slit of the cassette positioning shaft. To attach the guide guard, only insert it into the right and left holes. To remove it, use a pair of tweezers as shown in the figure below.


Insert a pair of tweezers into the clearance of the chassis to release the lock of the slit.
Lock of slit

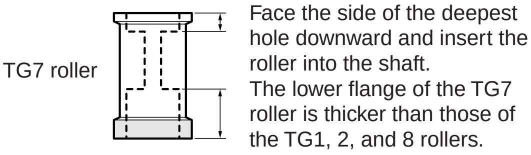

[TG1 side]
(The components are the same as on the TG8 side.)
Be careful not to touch the tape guide (▨ part).
[TG8 side]
TG upper flange
TG roller
TG sleeve
TG ring
Compression coil spring (TG)
Guide guard
Cassette positioning shafts

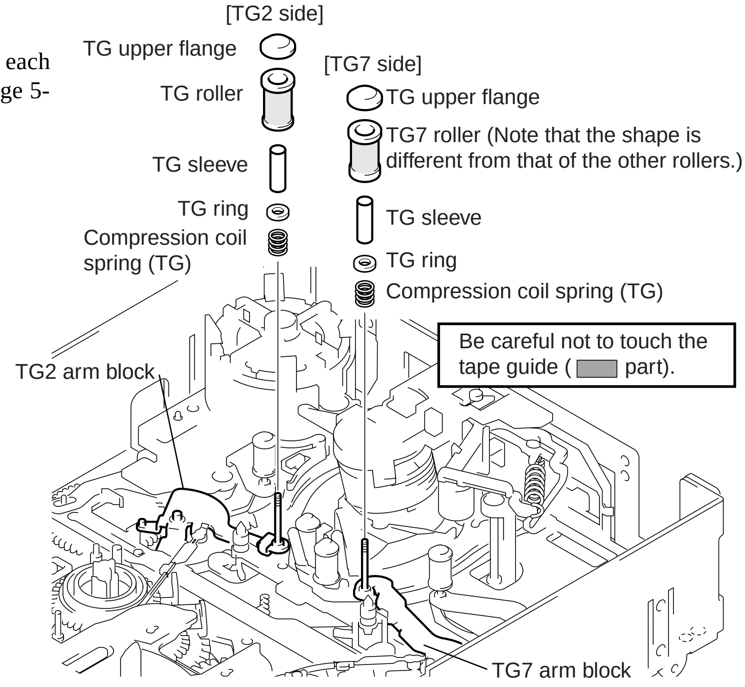
3-2. TAPE GUIDE 2/7

Disassembly/Assembly

When the tape guide 2/7 is replaced or attached, perform each adjustment from Adjustment Start -3 of the flowchart on page 5-23.

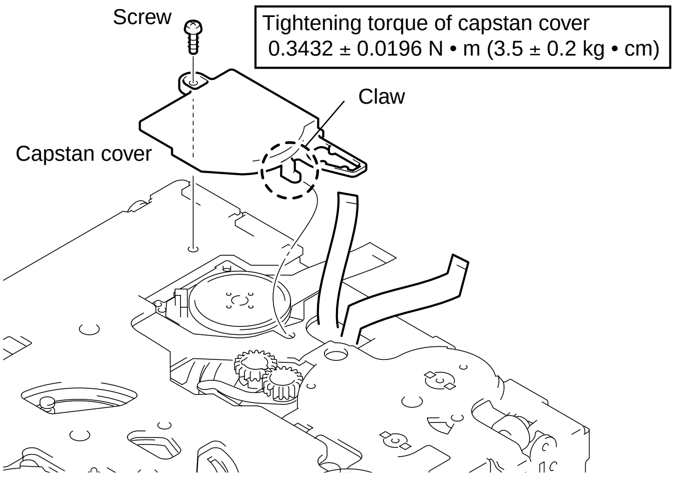
To attach or remove the tape guide, use the screwdriver for the tape path (J-5). When attaching the TG rollers, check the upward and downward directions and that the TG roller to be attached to the TG7 side is exclusively for the TG7 side. Then attach the TG rollers to the chassis shaft.


TG7 roller
Face the side of the deepest hole downward and insert the roller into the shaft.
The lower flange of the TG7 roller is thicker than those of the TG1, 2, and 8 rollers.

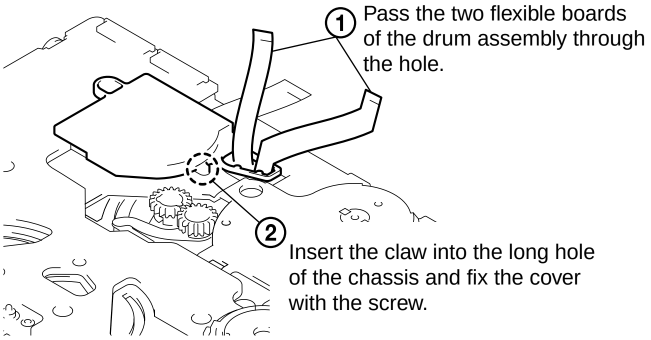

[TG2 side]
TG upper flange
TG roller
TG sleeve
TG ring
Compression coil spring (TG)
[TG7 side]
TG upper flange
TG7 roller (Note that the shape is different from that of the other rollers.)
TG sleeve
TG ring
Compression coil spring (TG)
Be careful not to touch the tape guide (▨ part).
TG2 arm block
TG7 arm block

3-3. CAPSTAN COVER

Disassembly/Assembly


Screw
Claw
Capstan cover

Tightening torque of capstan cover
0.3432 ± 0.0196 N • m (3.5 ± 0.2 kg • cm)

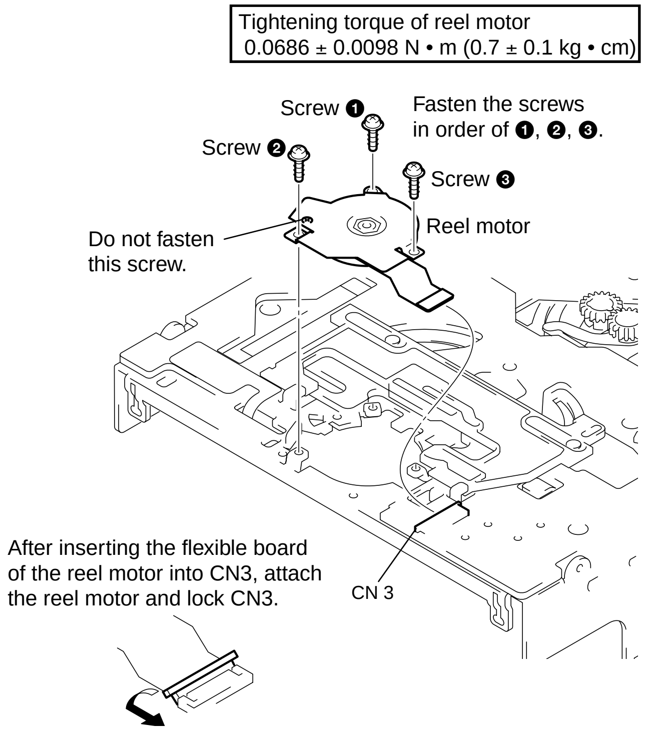


① Pass the two flexible boards of the drum assembly through the hole.

② Insert the claw into the long hole of the chassis and fix the cover with the screw.

3-4. REEL MOTOR

Disassembly/Assembly


Screw ❶
Screw ❷
Screw ❸
Reel motor
CN 3

Tightening torque of reel motor
0.0686 ± 0.0098 N • m (0.7 ± 0.1 kg • cm)

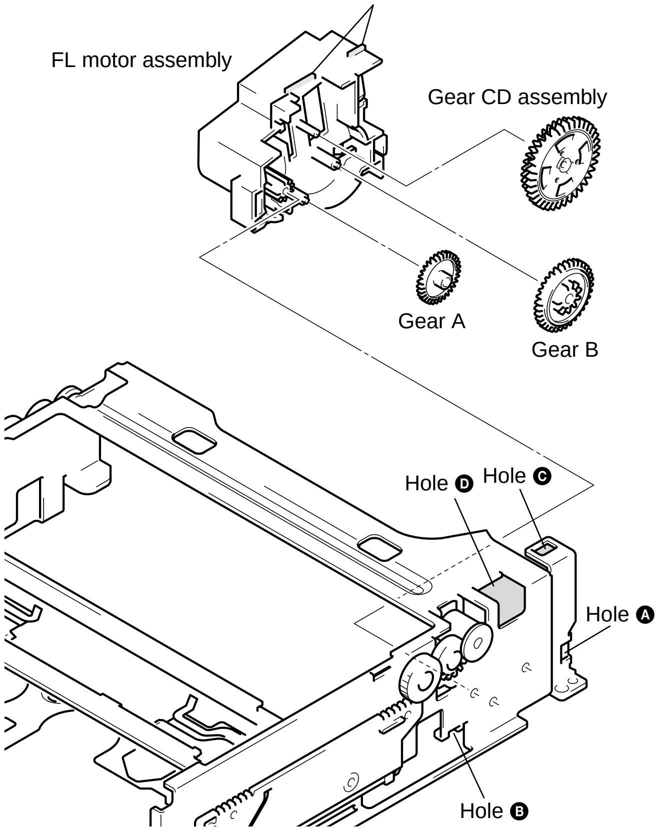
Fasten the screws in order of ❶, ❷, ❸.

Do not fasten this screw.

After inserting the flexible board of the reel motor into CN3, attach the reel motor and lock CN3.

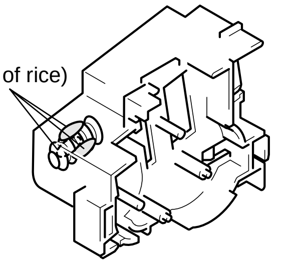
3-5. FL MOTOR ASSEMBLY, GEAR A, GEAR B AND GEAR CD ASSEMBLY

Disassembly/Assembly


Positioning bosses
FL motor assembly
Gear CD assembly
Gear A
Gear B
Hole Ⓓ
Hole Ⓒ
Hole Ⓐ
Hole Ⓑ

Remove the claws of the FL motor assembly from hole Ⓐ and hole Ⓑ and remove the FL motor assembly. Then, remove each gear, etc.
To attach them, after attaching the gears, etc. to the FL motor assembly and hook the positioning bosses of the FL motor block on holes Ⓒ and Ⓓ then fit the two claws in each hole Ⓐ and Ⓑ.

The worm gears are attached inside the FL motor assembly. When attaching the FL motor assembly, apply grease there.

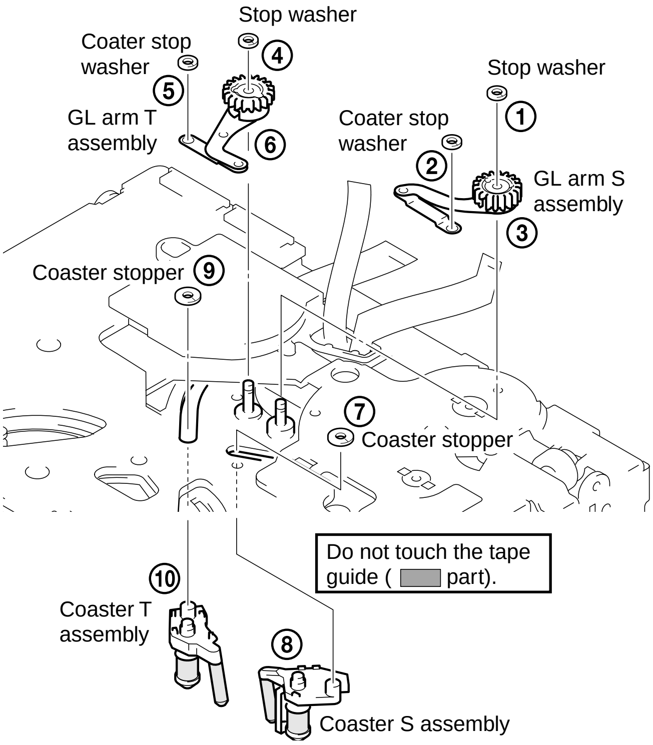


Apply grease.
(half size of one grain of rice)

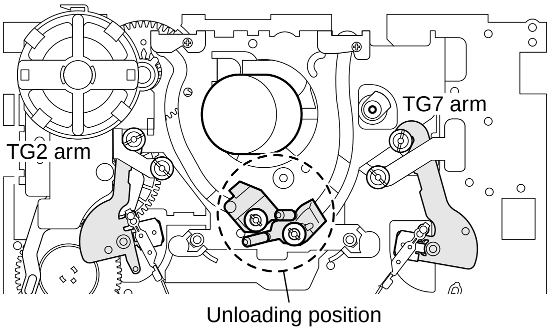
3-6. GL ARM S ASSEMBLY, GL ARM T ASSEMBLY, COASTER S ASSEMBLY AND COASTER T ASSEMBLY

Disassembly: Remove the parts in order of ①➡②➡③➡④➡⑤➡⑥➡⑦➡⑧➡⑨➡⑩

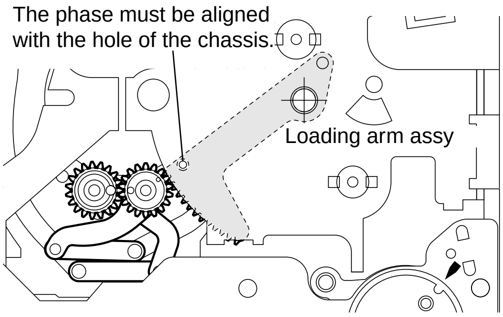
For the disassembling and assembling procedures of the GL gear, GL helical torsion spring, etc., refer to page 5-21.


Stop washer
④
Coater stop washer
⑤
GL arm T assembly
⑥
Stop washer
①
Coater stop washer
②
GL arm S assembly
③
Coaster stopper
⑨
⑦
Coaster stopper
Do not touch the tape guide (▨ part).
⑩
Coaster T assembly
⑧
Coaster S assembly

Move the TG2/7 arms to the loading position with the regulated power supply or by hand while referring to page 5-5. Each coaster assembly must be in the unloading position.

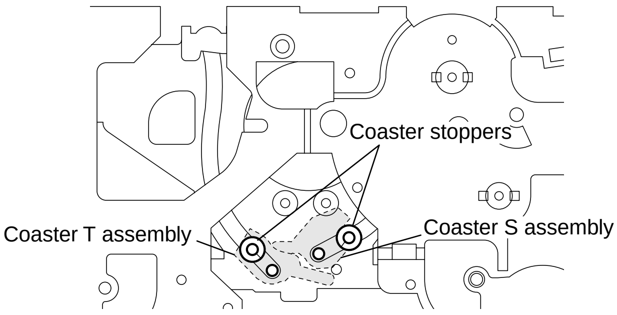

TG7 arm
TG2 arm
Unloading position

With consideration for future assembly, check from the rear of the chassis that the phase of the loading arm assy is aligned.

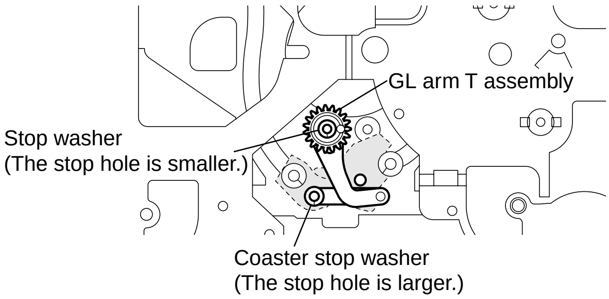

The phase must be aligned with the hole of the chassis.
Loading arm assy

Assembly

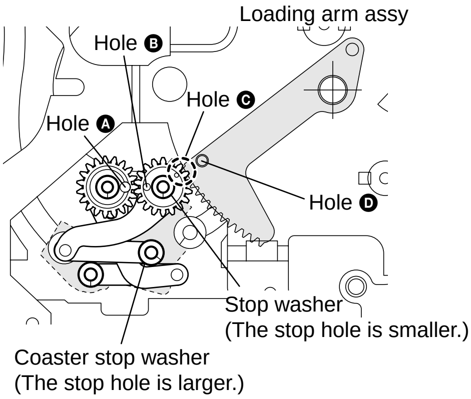
① Attach the coaster S/T assembly to the chassis with a new coaster stopper while being careful not to touch the tape guide. Do the work while holding the drum side of each coaster.


Coaster stoppers
Coaster T assembly
Coaster S assembly

② Attach the GL arm T assembly. Fix the stop washers in the correct position, using new stop washers.


GL arm T assembly
Stop washer
(The stop hole is smaller.)
Coaster stop washer
(The stop hole is larger.)

③ Attach the GL arm S assembly while checking the phase of each part. Fix the stop washers at the correct position, using new stop washers.

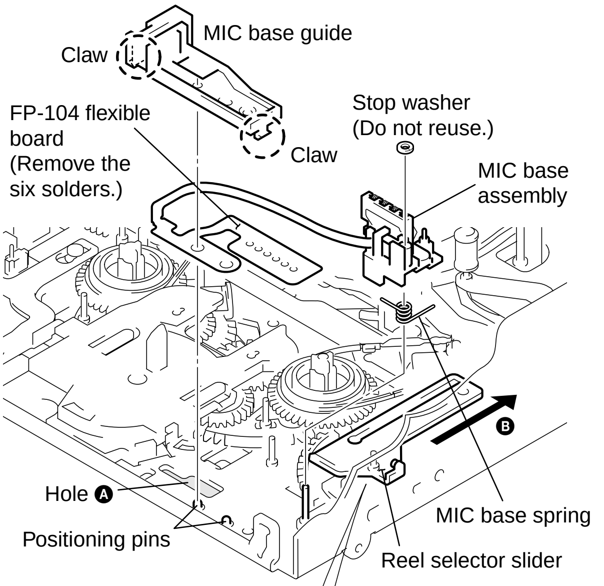

Loading arm assy
Hole 🅑
Hole 🅒
Hole 🅐
Hole 🅓
Stop washer
(The stop hole is smaller.)
Coaster stop washer
(The stop hole is larger.)

Check each phase adjustment while referring to the above figure.
Hole 🅐 of the GL gear T and hole 🅑 of the GL gear S must face each other. Hole 🅓 of the loading arm assy must be aligned with the hole of the chassis, and the endmost gear tooth of the loading arm assy must face toward hole 🅒 of the GL gear S.

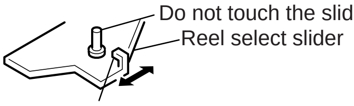
3-7. MIC BASE GUIDE, MIC BASE ASSEMBLY AND MIC BASE SPRING

Disassembly/Assembly

For the disassembling and assembling procedures of the components of the MIC base assembly, refer to page 5-21.


Claw
MIC base guide
FP-104 flexible board
(Remove the six solders.)
Stop washer
(Do not reuse.)
Claw
MIC base assembly
Ⓑ
Hole Ⓐ
Positioning pins
MIC base spring
Reel selector slider

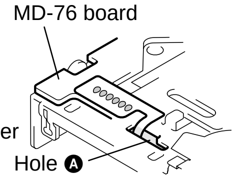
When selecting a cassette position, be careful not to touch the slider drive shaft because it can be easily bent or broken.


Do not touch the slider drive shaft.
Reel select slider

Select the desired cassette position by pressing the claw position.

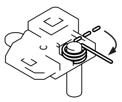
Remove the six solders on the FP-104 flexible board from the rear of the chassis. Pass the flexible board through hole Ⓐ and pull it out of the front side of the chassis while being careful not to damage it. To attach the flexible board, perform the steps of disassembly in reverse order.

Six solders
Temperature of tip of soldering iron : 350 ± 20 °C
Hold time : one second or shorter

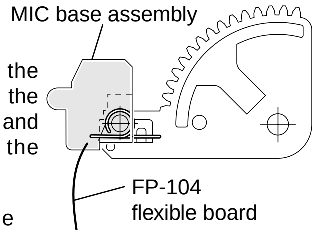

MD-76 board
Hole Ⓐ

Move the reel selector slider in the direction of arrow Ⓑ and attach the MIC base assembly at the position of "S cassette". For the assembly of the MIC base spring, refer to the figure.

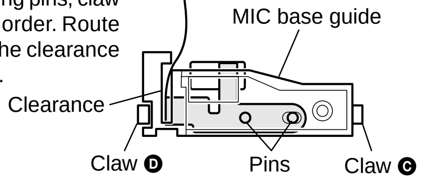
Note: Do not hold the shaft when selecting the reels.



Insert the side of the shorter spring into the hole of the holder and hook the side of the longer spring.


MIC base assembly
FP-104
flexible board

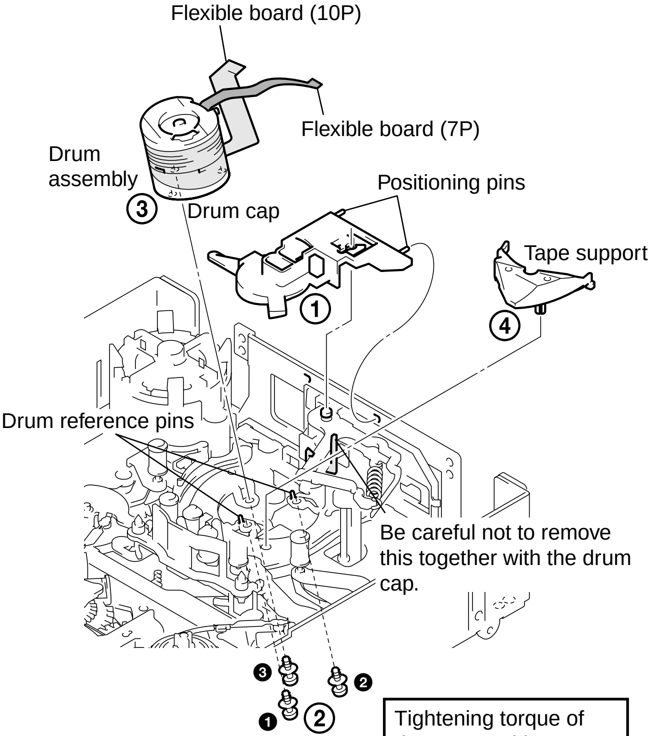
When attaching the MIC base guide, lock the positioning pins, claw Ⓒ, and claw Ⓓ in this order. Route the flexible board into the clearance of the MIC base guide.


MIC base guide
Clearance
Claw Ⓓ
Pins
Claw Ⓒ

3-8. DRUM CAP, DRUM ASSEMBLY AND TAPE SUPPORT

Disassembly: Remove them in order of ①➡②➡③

For the disassembly and assembly procedures of the components of the drum assembly, refer to page 5-22.


Flexible board (10P)
Flexible board (7P)
Drum assembly
③
Drum cap
Positioning pins
Tape support
①
④
Drum reference pins
Be careful not to remove this together with the drum cap.
❸
❷
❶
②

Drum fixing screw assembly
(Fasten the screws in order ❶, ❷, ❸.)

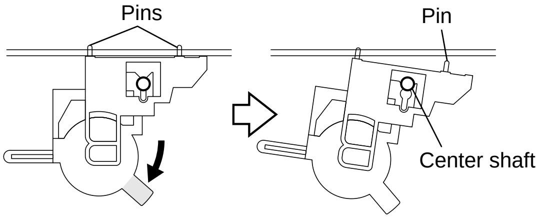
Tightening torque of drum assembly
0.02941 ± 0.0049 N • m
(0.3 ± 0.05 kg • cm)

Assembly: Attach the parts while referring to the disassembly procedure and the figure below.

(After assembling, adjust the tape path while referring to page 5-23 and thereafter.)

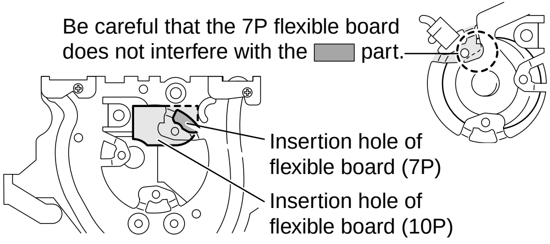
Assembly and disassembly of the drum assembly

When pulling the ▨ part in the direction of the arrow, the claw is removed from the center shaft, then the right pin and the drum cap are removed as shown in the figure on the right. To attach the drum assembly, perform the disassembly steps in reverse order.

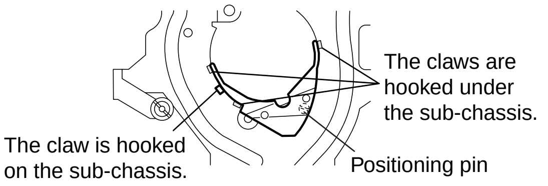

Pins
Pin
Center shaft

Assembly and disassembly of the drum assembly

Be careful that the 7P flexible board does not interfere with the ▨ part.


Insertion hole of flexible board (7P)
Insertion hole of flexible board (10P)

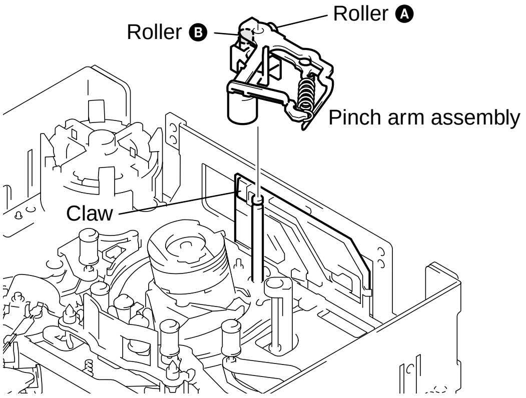
Assembly and disassembly of the tape support


The claws are hooked under the sub-chassis.
The claw is hooked on the sub-chassis.
Positioning pin

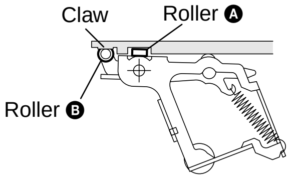
3-9. PINCH ARM ASSEMBLY

Disassembly/Assembly

For the disassembling and assembling procedures of the tape retainer and compression coil spring (tape retainer), refer to page 5-22.


Roller Ⓑ
Roller Ⓐ
Pinch arm assembly
Claw

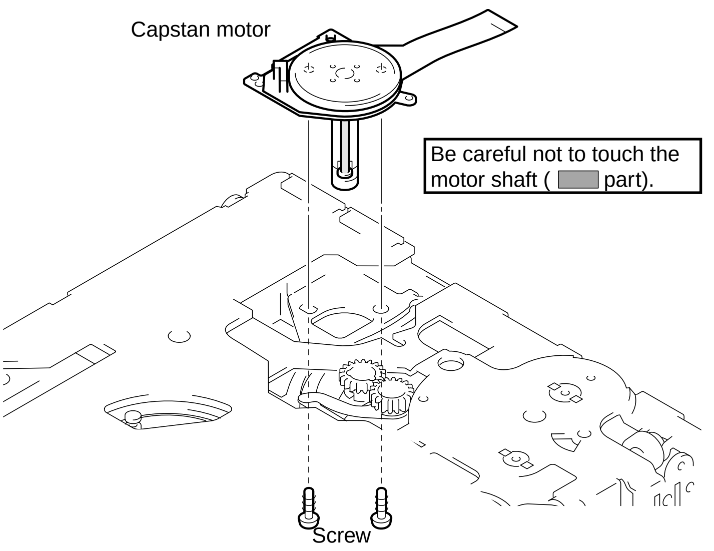
Push roller Ⓐ into the groove as shown in the figure. Insert roller Ⓑ into the claw. To remove the pinch arm assembly, pull out the pinch arm upward while pushing the claw.


Claw
Roller Ⓐ
Roller Ⓑ

3-10. CAPSTAN MOTOR

Disassembly/Assembly

(After assembling, adjust the tape path from page 5-23.)


Capstan motor
Screw

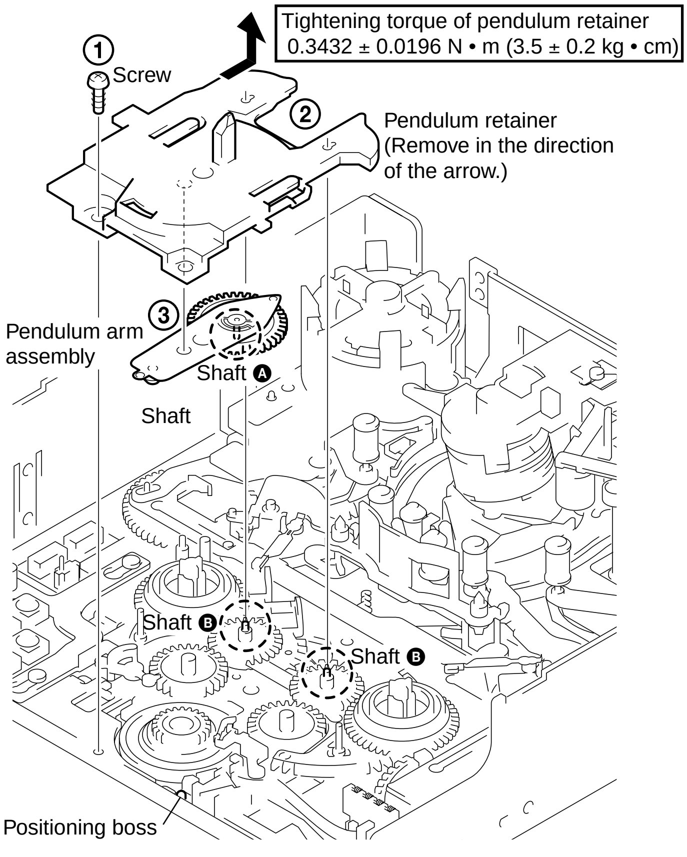
Be careful not to touch the motor shaft (▨ part).

Tightening torque of capstan motor
0.1961 ± 0.0196 N • m (2.0 ± 0.2 kg • cm)

3-11. PENDULUM RETAINER AND PENDULUM ARM ASSEMBLY

Disassembly: Remove them in order of ①➡②➡③

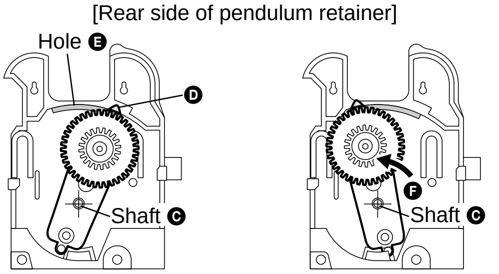
(To attach them, perform the disassembly steps in reverse order.)


① Screw
② Pendulum retainer
(Remove in the direction of the arrow.)
③
Pendulum arm assembly
Shaft Ⓐ
Shaft
Shaft Ⓑ
Shaft Ⓑ
Positioning boss

Tightening torque of pendulum retainer
0.3432 ± 0.0196 N • m (3.5 ± 0.2 kg • cm)

Notes during assembly

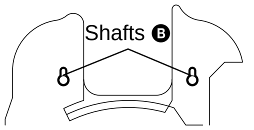
When assembling or disassembling the pendulum arm assembly, be careful of the following.


[Rear side of pendulum retainer]
Hole Ⓔ
Ⓓ
Shaft Ⓒ
Ⓕ
Shaft Ⓒ

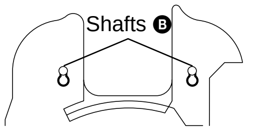
Insert tip Ⓓ of the pendulum arm into hole Ⓔ of the pendulum retainer and insert the pendulum into shaft Ⓒ.

Slide the pendulum arm in the direction of arrow Ⓕ and attach it to the chassis.

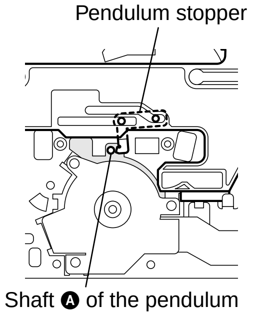
Attach the pendulum retainer to shaft Ⓑ. Be careful of the positions of the pendulum stopper at the rear of the chassis and shaft Ⓐ of the pendulum arm.



Can be removed.



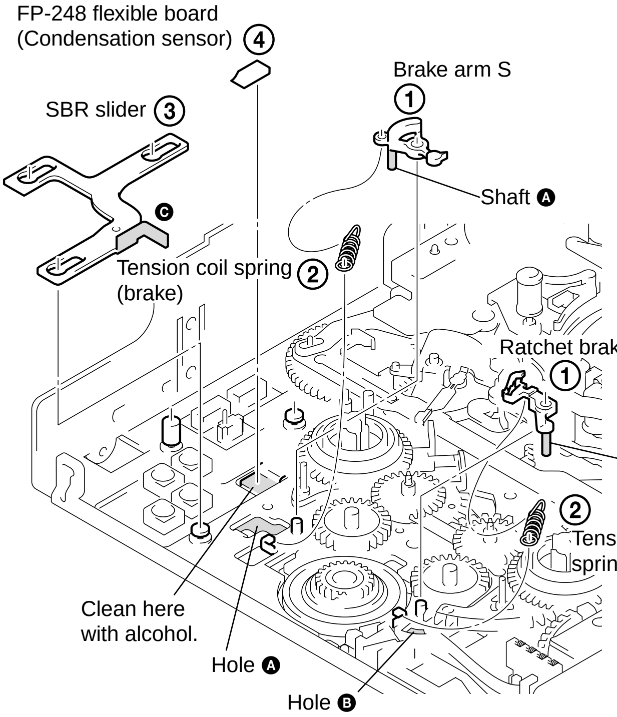
Cannot be removed.


Pendulum stopper

Shaft Ⓐ of the pendulum must be in this position.

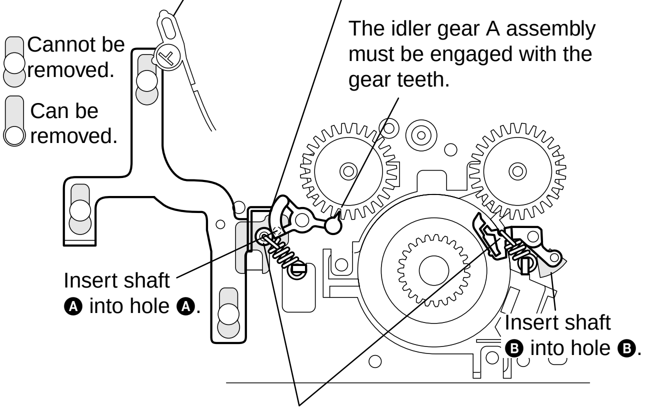
3-12. BRAKE ARM S, RATCHET BRAKE T, TENSION COIL SPRING (BRAKE), SBR SLIDER AND FP-248 FLEXIBLE BOARD (CONDENSATION SENSOR)

Disassembly: Remove them in order of ①➡②➡③➡④
(To attach them, perform the disassembly steps in reverse order.)


FP-248 flexible board
(Condensation sensor) ④
Brake arm S
①
SBR slider ③
Ⓒ
Shaft Ⓐ
Tension coil spring ②
(brake)
Ratchet brake T
①
Shaft Ⓑ
②
Tension coil
spring (brake)
Clean here
with alcohol.
Hole Ⓐ
Hole Ⓑ

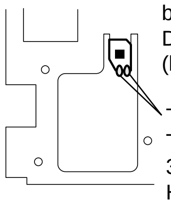
Remove the SBR slider while being careful not to touch the adjuster.

Portion Ⓒ of the SBR slider and brake arm S must run close to each other.


Cannot be
removed.
Can be
removed.
Insert shaft
Ⓐ into hole Ⓐ.
Insert shaft
Ⓑ into hole Ⓑ.

The idler gear A assembly must be engaged with the gear teeth.

Hook the hook of the spring on the brake side from underneath.



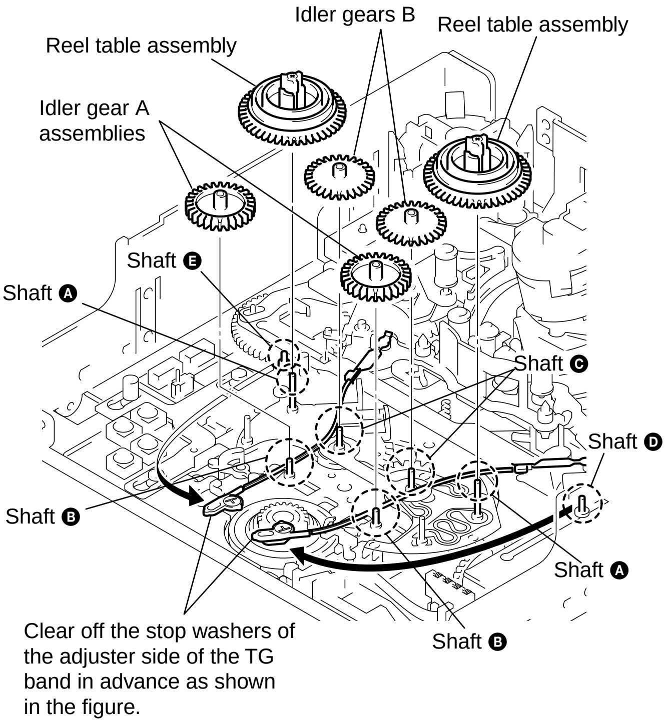
When attaching the FP-248 flexible board, scrape the contact surface with a swab to stick the flexible board to the chassis.
Do not touch the sensor block (black area).

Two solders
Temperature of tip of soldering iron:
350 ± 20 °C
Hold time:
one second or shorter

3-13. REEL TABLE ASSEMBLY, IDLER GEAR A ASSEMBLY AND IDLER GEAR B

Disassembly/Assembly
(Do not touch the TG band block.)

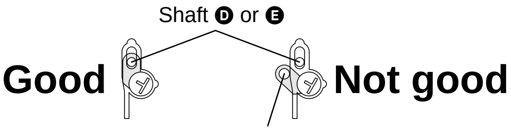
When the reel table assembly is replaced or attached, perform each adjustment from Adjustment Start -1 of the flowchart on page 5-23.


Idler gears B
Reel table assembly
Reel table assembly
Idler gear A
assemblies
Shaft Ⓔ
Shaft Ⓐ
Shaft Ⓒ
Shaft Ⓓ
Shaft Ⓑ
Shaft Ⓐ
Shaft Ⓑ

Clear off the stop washers of the adjuster side of the TG band in advance as shown in the figure.

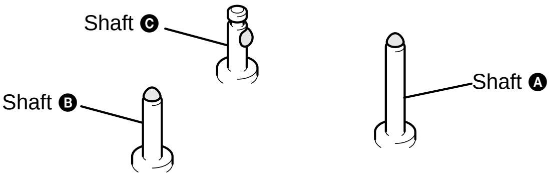
Checks before work

The TG band winds around the slit of the reel table assembly. Before removing the reel table assembly, clear off the TG band while referring to the left figure. When attaching the TG band, be sure to use new stop washers.

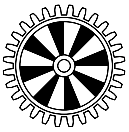

Shaft Ⓓ or Ⓔ
Good
Not good

When attaching the TG band, the part also must be inserted into shaft Ⓓ or Ⓔ.

When attaching each gear, apply grease to each fixing shaft. Apply grease of half the size of one rice grain to the top side of shaft Ⓒ. When attaching the idler gear A assembly, be careful not to apply grease to the reflection panel.


Shaft Ⓒ
Shaft Ⓐ
Shaft Ⓑ

Apply grease to ▨ part.
(half size of one grain of rice)

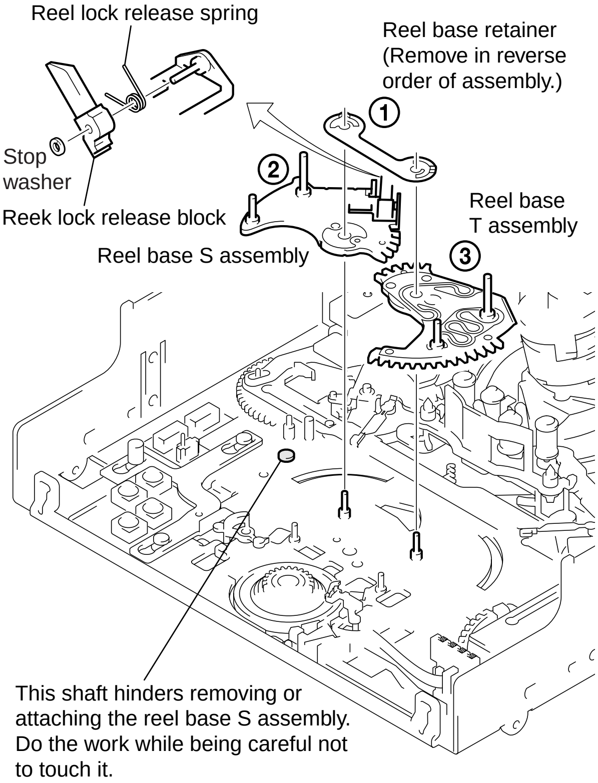


When attaching the idler gear A assembly, be careful not to apply grease to the reflection panel.

3-14. REEL BASE RETAINER, REEL BASE T ASSEMBLY AND REEL BASE S ASSEMBLY (REEL LOCK RELEASE BLOCK AND REEL LOCK RELEASE SPRING)

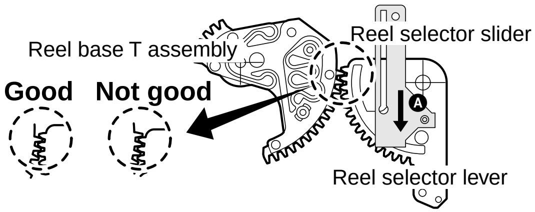
Disassembly: Remove them in order of ①➡②➡③

(Refer to Assembly, too.)

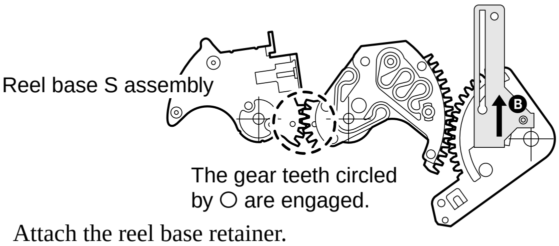

Reel lock release spring
Reel base retainer
(Remove in reverse order of assembly.)
①
②
③
Stop washer
Reek lock release block
Reel base S assembly
Reel base T assembly
This shaft hinders removing or attaching the reel base S assembly. Do the work while being careful not to touch it.

Assembly: Attach them in order of ①➡②➡③

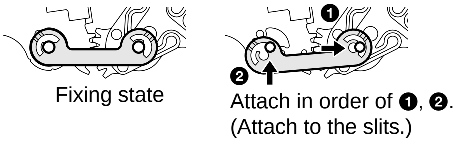
① Move the reel selector slider in the direction of arrow 🅐 to check that the reel selector lever is "L cassette". At this position, attach the reel base T assembly. The gear teeth must be engaged as shown in the figure.


Reel base T assembly
Reel selector slider
Good
Not good
🅐
Reel selector lever

② Move the reel selector slider in the direction of arrow 🅑 and switch the reel selector lever to "S cassette". At this position, attach the reel base S assembly. The gear teeth (circled by ○) must be engaged as shown in the figure.


Reel base S assembly
🅑
The gear teeth circled by ○ are engaged.

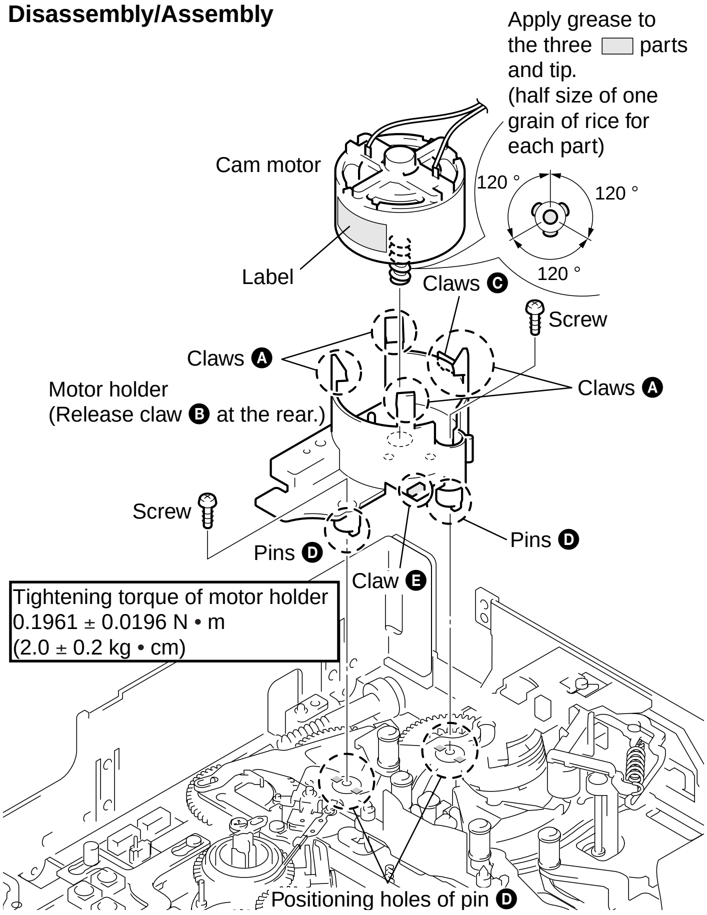
③ Attach the reel base retainer.


Fixing state
❶
❷
Attach in order of ❶, ❷.
(Attach to the slits.)

Note: Do not hold the shaft when selecting the reels.

3-15. CAM MOTOR, MOTOR HOLDER

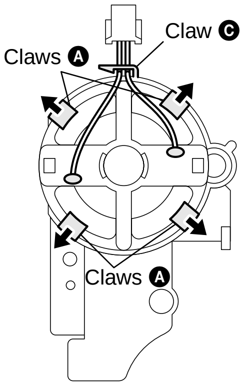
Disassembly/Assembly


Apply grease to the three ▨ parts and tip.
(half size of one grain of rice for each part)
Cam motor
120 °
120 °
120 °
Label
Claws 🅒
Screw
Claws 🅐
Motor holder
(Release claw 🅑 at the rear.)
Claws 🅐
Screw
Pins 🅓
Pins 🅓
Claw 🅔
Positioning holes of pin 🅓

Tightening torque of motor holder
0.1961 ± 0.0196 N • m
(2.0 ± 0.2 kg • cm)

Checks before disassembly and assembly

The cam motor is fixed on the motor holder by the four claws. Releasing the four claws enables the cam motor to be removed without removing the motor holder from the chassis. When attaching the cam motor, be careful of the assembling direction (the label must face toward the front). If the phase of the gear, etc. moves when removing the motor holder, refer to page 5-11.


Claws 🅐
Claw 🅒
Claws 🅐

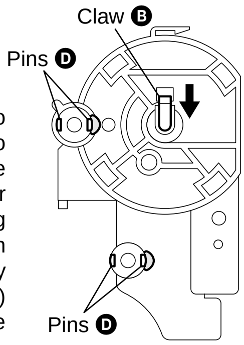
[Front side of motor holder]

While spreading claws 🅐 in the direction of the arrow, pull out the cam motor upward. To attach it, push the cam motor into the motor holder and route the two wires of the cam motor into claw 🅒.

When attaching the TG2 control arm, claw 🅔 must be inserted into the hole of the TG2 control arm.

[Rear side of motor holder]

The motor holder is fixed by the two screws and claw 🅑 at the rear. To remove it, push claw 🅑 in the direction of the arrow from the rear of the chassis. Note that positioning pins 🅓 are easy to break when attaching the motor holder. Apply grease (half size of one grain of rice) to the two ▬ parts shown in the right figure.


Claw 🅑
Pins 🅓
Pins 🅓

3-16. TG2/7 ARM BLOCK, TG2/7 BAND BLOCK AND TENSION COIL SPRING (TG2)/(TG7)

Disassembly: Remove them in order of ①➡②➡③➡④

For the disassembling and assembling procedures of the assembly components of the TG2/TG7 arm, refer to page 5-22.

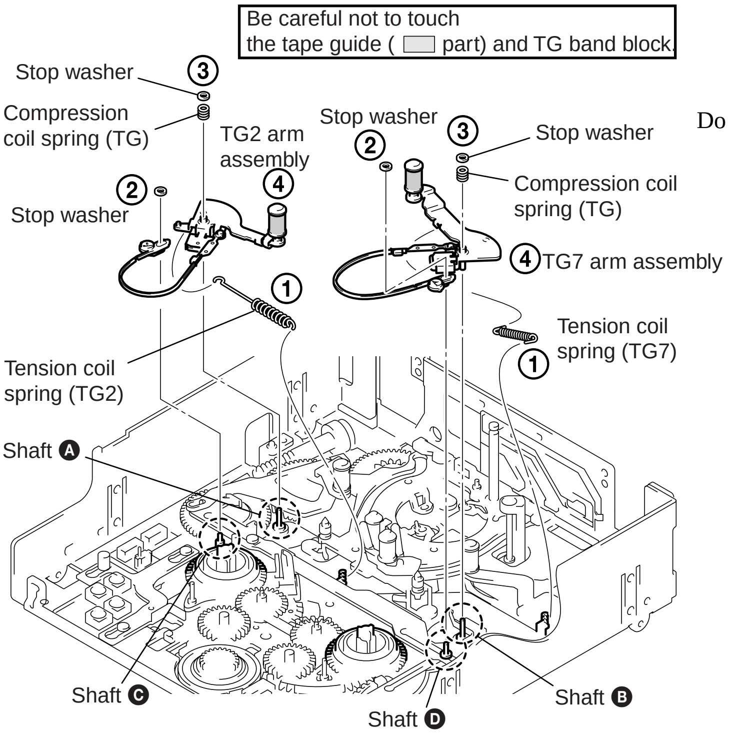

Be careful not to touch
the tape guide (▭ part) and TG band block.
Stop washer
③
Compression coil spring (TG)
TG2 arm assembly
②
Stop washer
④
Stop washer
②
③
Stop washer
Compression coil spring (TG)
④ TG7 arm assembly
①
Tension coil spring (TG7)
①
Tension coil spring (TG2)
Shaft Ⓐ
Shaft Ⓒ
Shaft Ⓓ
Shaft Ⓑ

Fig. 1

Notes during work

Be careful when handling the TG arm and the peripheral parts.

- Twisting and bending of the band block and tension coil spring
- Dirt and scratches of the tape guide
- Loss of the compression coil spring (TG)

Do not reuse removed stop washers.

Disassembly of the band TG2/TG7 assembly

When pulling portion Ⓔ of the TG2 or TG7 band in the direction of the arrow, a click sound is heard as the band is removed. To attach the bands, pull out the opposite side to portion Ⓔ to lock.

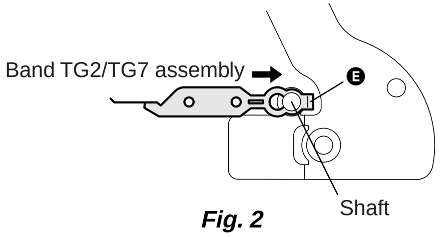

Band TG2/TG7 assembly
Ⓔ
Shaft

Fig. 2

Assembly: Attach them while referring to figure above or below and the descriptions.

When these parts are replaced or attached, perform each adjustment from Adjustment Start -3 of the flowchart on page 5-23.

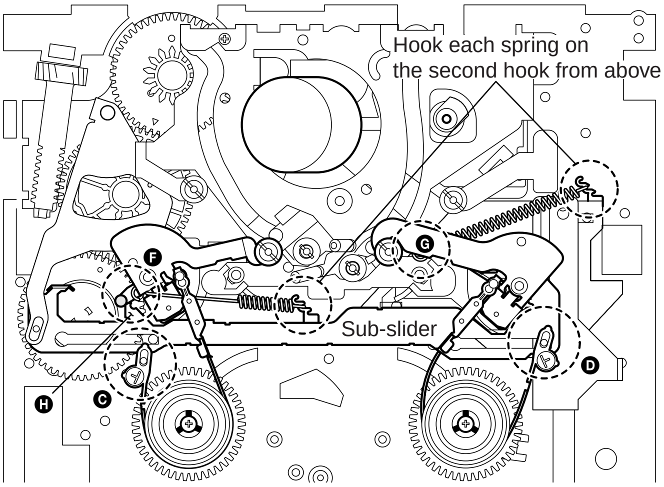
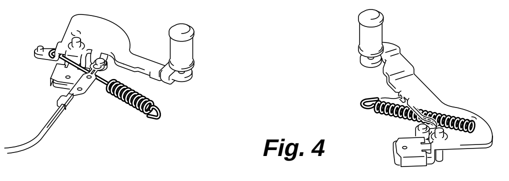

Hook each spring on
the second hook from above
Ⓕ
Ⓖ
Sub-slider
Ⓓ
Ⓗ
Ⓒ

Fig. 3


[TG2 side]

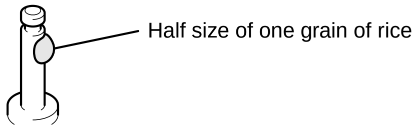
[TG7 side]

Fig. 4

Hook the spring from the inside and put it under the TG band.

Hook the spring from the outside and put it under the arm.

① Apply grease to the top side of the fixing shaft (Ⓐ or Ⓑ) of the TG arm. (Fig. 1)

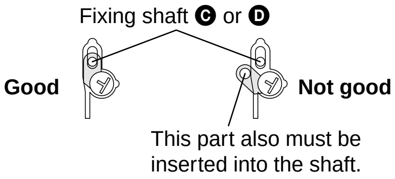

Half size of one grain of rice

② Attach the TG band assembly to the TG arm assembly. (Fig. 2) Be sure that the felt sides of the TG band face toward the reel tables so that they surround the respective reel tables.

③ Attach the tension coil spring to the TG arm assembly. (Fig. 3, 4)
  - Hook the spring of the tension coil spring (TG2) from the inside and put it under the TG band. (Fig. 3-Ⓕ, 4)
  - Hook the spring of the tension coil spring (TG7) from the outside and put it under the TG7 band. (Fig. 3-Ⓖ, 4)

④ Attach the TG arm block to the shaft (Ⓐ or Ⓑ) and attach the tension coil spring to the second hook. When attaching the TG2 arm, the ▨ part must be at the left of portion Ⓗ of the slider. (Fig. 3)

⑤ Attach the adjuster of the TG band to shafts Ⓒ and Ⓓ.


Fixing shaft Ⓒ or Ⓓ
Good
Not good
This part also must be
inserted into the shaft.

⑥ Fix the TG band and TG arm with new stop washers. When attaching the TG arm, do not forget to attach the compression coil spring (TG). (Fig. 1)

3-17. SUB-SLIDER ARM, SUB-SLIDER, ENCODER GEAR, MAIN CAM GEAR, COUPLING GEAR, SUB-CAM GEAR, PINCH SLIDER AND LOADING ARM ASSY

Disassembly: Remove them in order of ①➡②➡③➡④➡⑤➡⑥➡⑦➡⑧

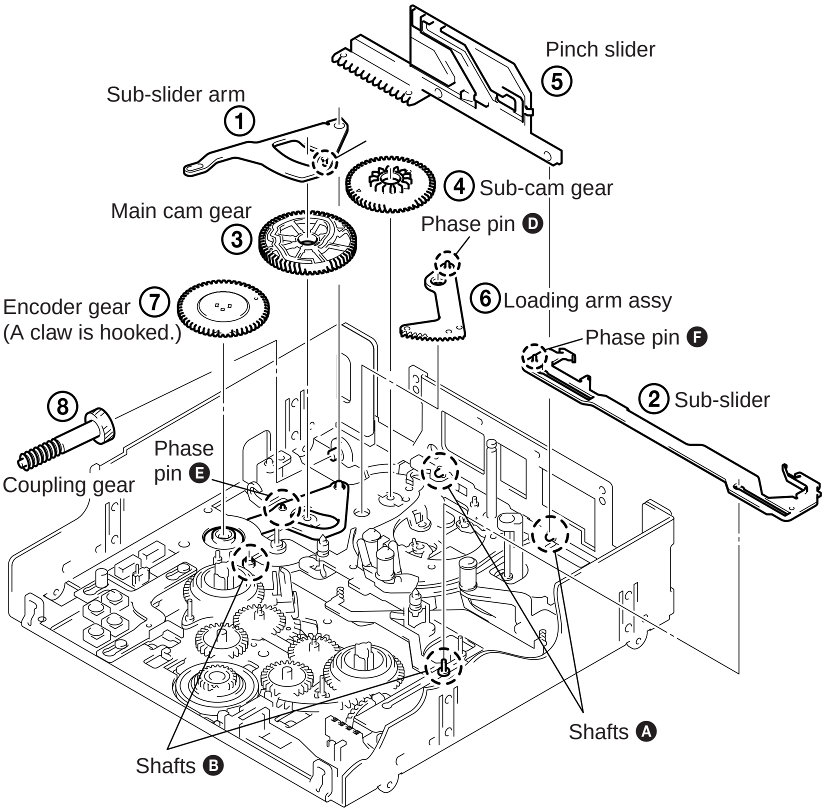

Pinch slider
⑤
Sub-slider arm
①
④ Sub-cam gear
Main cam gear
③
Phase pin Ⓓ
Encoder gear ⑦
(A claw is hooked.)
⑥ Loading arm assy
Phase pin Ⓕ
② Sub-slider
⑧
Phase pin Ⓔ
Coupling gear
Shafts Ⓐ
Shafts Ⓑ

Fig. 1

Disassembly of the pinch slider

Move the pinch slider to the leftmost end, and slide it upward and remove it when two shafts Ⓐ are superimposed on the holes of the pinch slider.

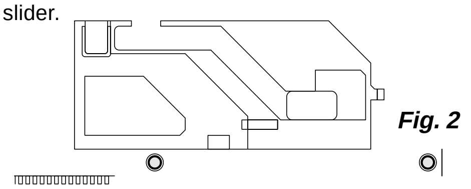


Fig. 2

Disassembly of the sub-slider

Move the sub-slider to the rightmost and remove it from two shafts Ⓑ.

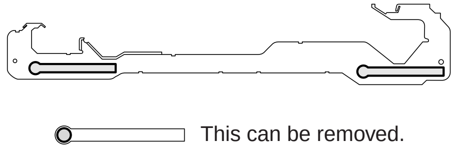

This can be removed.
This cannot be removed.

Fig. 3

Disassembly of the encoder gear

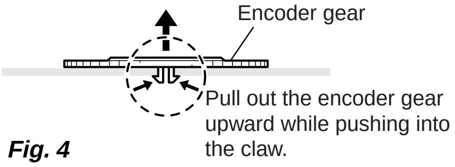

Encoder gear
Pull out the encoder gear upward while pushing into the claw.

Fig. 4

Assembly: Attach them while referring to the figure above or below and the descriptions.

Check before work

When attaching the parts described in this section, various phase adjustments are required. Before work, refer to page 5-19 and check the reference phases.

[Rear side of chassis]

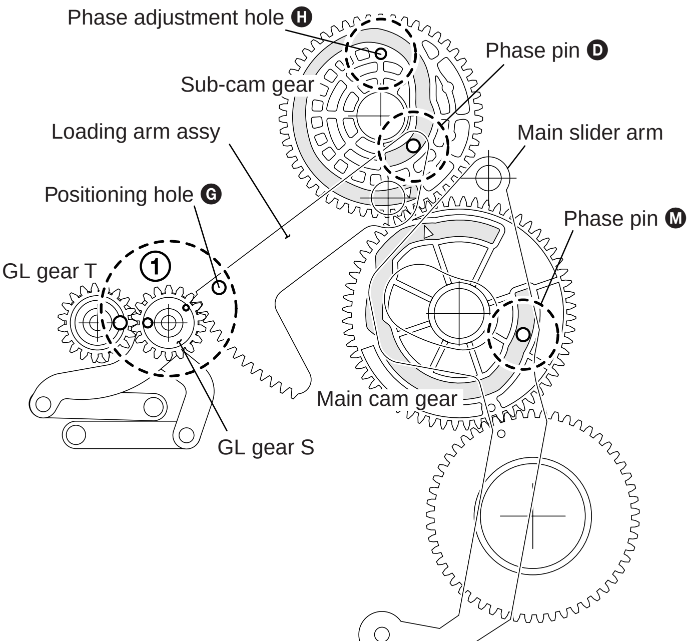

Phase adjustment hole Ⓗ
Phase pin Ⓓ
Sub-cam gear
Loading arm assy
Main slider arm
Positioning hole Ⓖ
Phase pin Ⓜ
GL gear T
①
Main cam gear
GL gear S

Fig. 5

① Attach the loading arm assy. (Refer to the figure above.)
The phases of the GL gear S and GL gear T must match and the positioning hole Ⓖ of the loading arm assy must be superimposed on the hole of the chassis. (Fig. 5)

② Attach the pinch slider. (Fig. 1, 2)

③ Apply grease to the groove at the rear of the sub-cam gear. (Fig. 6)
After applying, adjust the phase of the sub-cam gear to that of the pinch slider. (Fig. 7)
Phase pin Ⓓ of the loading arm assy must be inserted into the groove at the rear of the sub-cam gear. (Fig. 5, 7)

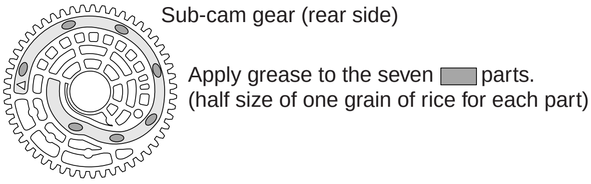

Sub-cam gear (rear side)
Apply grease to the seven ▨ parts.
(half size of one grain of rice for each part)

Fig. 6

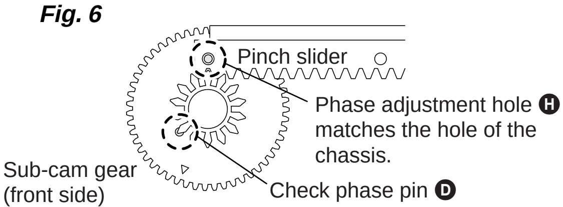

Pinch slider
Phase adjustment hole Ⓗ matches the hole of the chassis.
Sub-cam gear (front side)
Check phase pin Ⓓ through this hole

Fig. 7

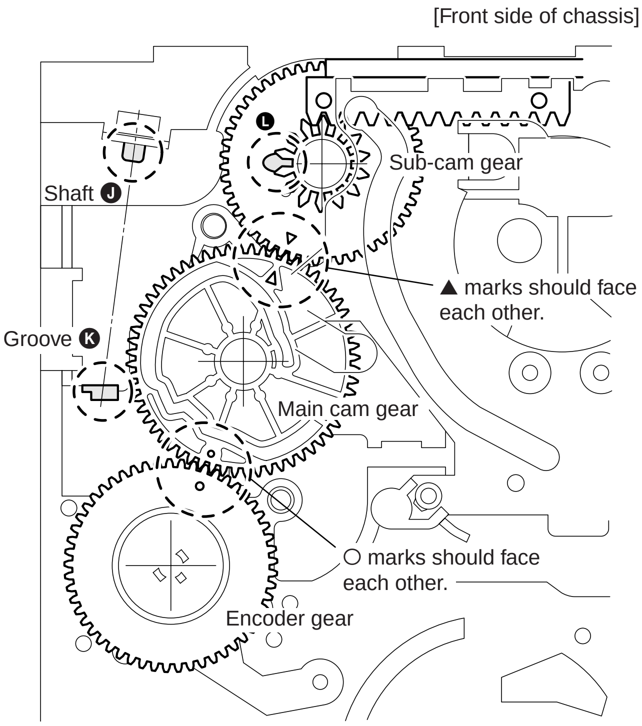

[Front side of chassis]
Ⓛ
Sub-cam gear
Shaft Ⓙ
▲ marks should face each other.
Groove Ⓚ
Main cam gear
○ marks should face each other.
Encoder gear

Fig. 8

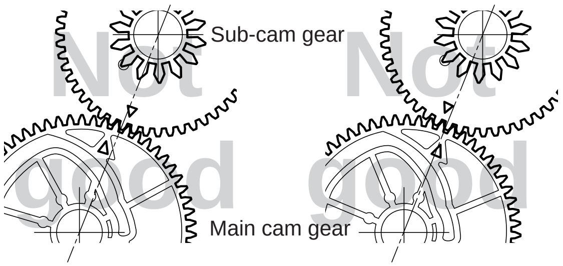

Sub-cam gear
Not good
Not good
Main cam gear

Fig. 11

④ Apply grease to the fixing block (shaft Ⓙ and U-shaped groove Ⓚ) of the coupling gear and portion Ⓛ of the sub-cam gear (half size of one grain of rice for each part). (Fig. 8)

⑤ Attach the coupling gear. After attaching, apply grease while rotating the coupling gear by 120˚ each time. (Fig. 9, 10)

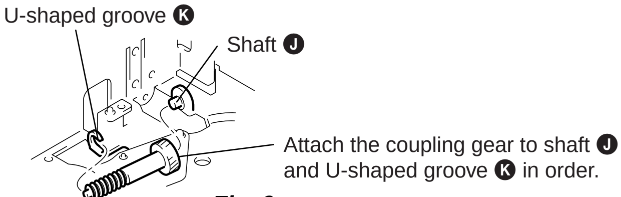

U-shaped groove Ⓚ
Shaft Ⓙ
Attach the coupling gear to shaft Ⓙ and U-shaped groove Ⓚ in order.

Fig. 9

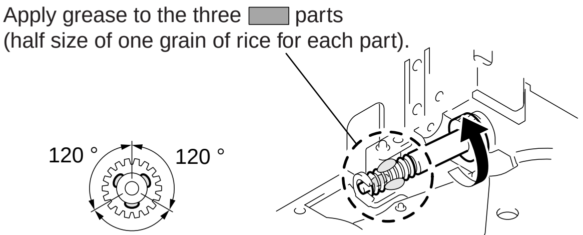

Apply grease to the three ▨ parts (half size of one grain of rice for each part).
120 °
120 °
120 °

Fig. 10

⑥ Attach the main cam gear while being careful of the directions of the front and rear sides. Also, take care of the phase adjustment to the sub-cam gear. (Fig. 8, 11, 12)
Phase pin Ⓜ of the main slider arm should be fitted in the groove of the main cam gear (rear side). (Fig. 5)

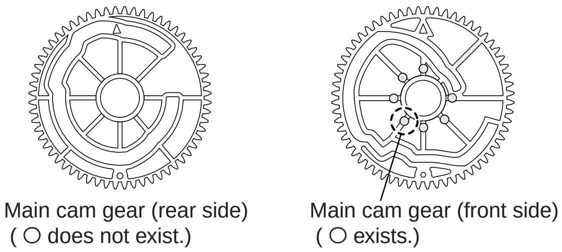

Main cam gear (rear side)
(○ does not exist.)
Main cam gear (front side)
(○ exists.)

Fig. 12

⑦ Attach the encoder gear. (Fig. 3)
Adjust the phases (marked) to those of the main cam gear. (Fig. 4/Fig. 8)

⑧ After moving the reel selector slider in the direction of arrow Ⓝ to set the position of the reel base to “L cassette”, attach the sub-slider in reverse order while referring to Fig. 3. (Fig. 13)

⑨ Attach the sub-slider arm. (Fig. 1/Fig. 13)

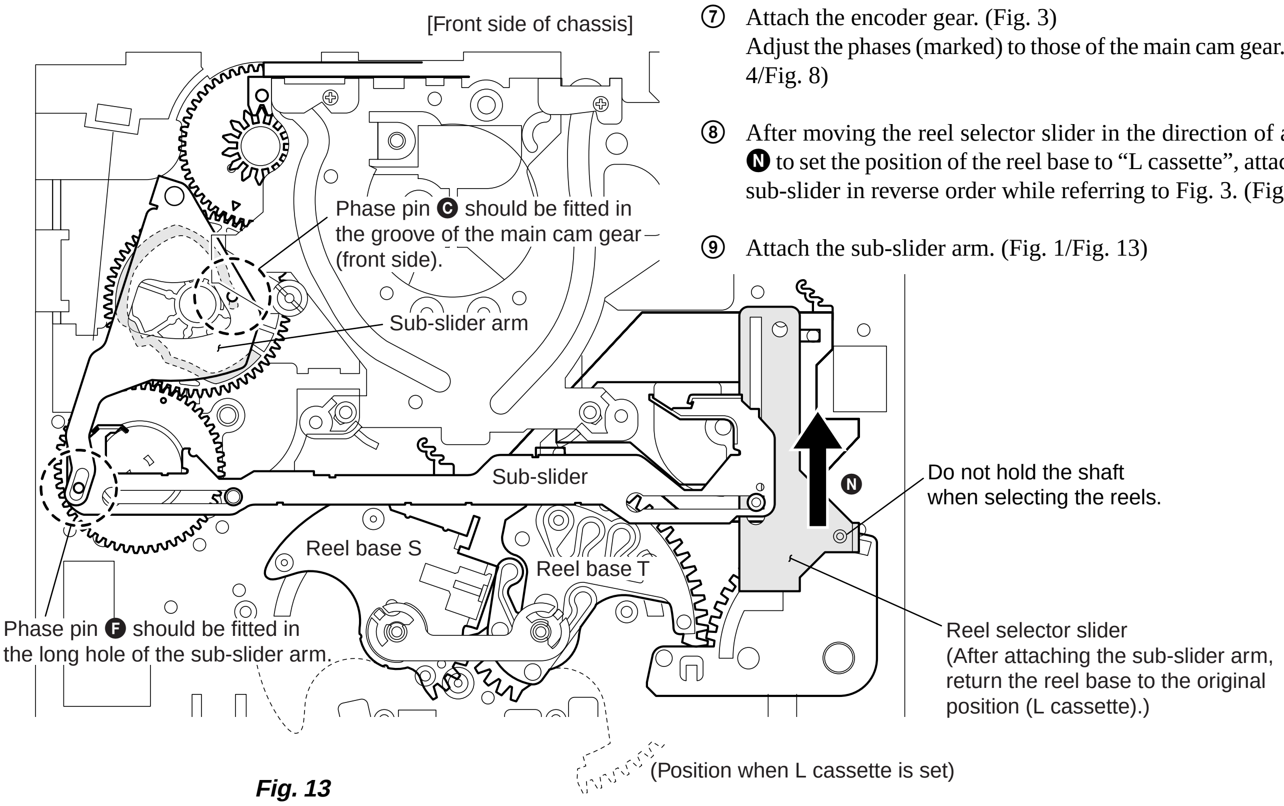
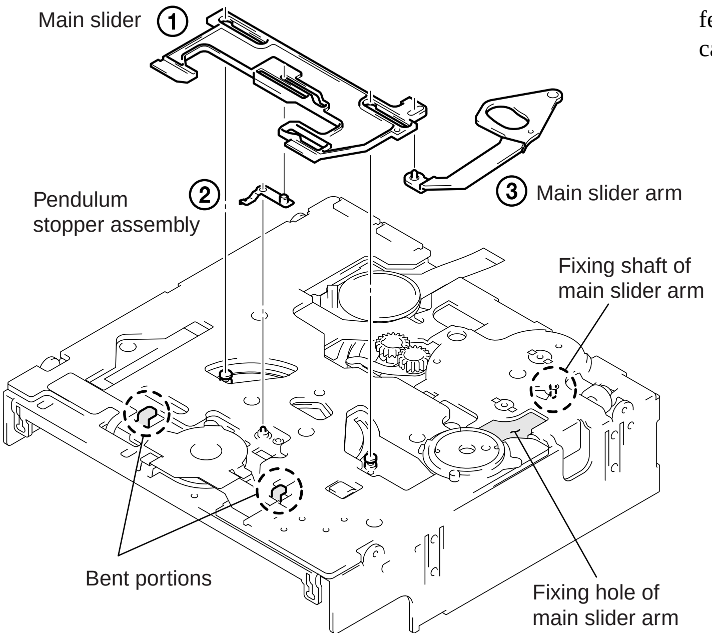

[Front side of chassis]
Phase pin Ⓒ should be fitted in the groove of the main cam gear (front side).
Sub-slider arm
Sub-slider
Ⓝ
Do not hold the shaft when selecting the reels.
Reel base S
Reel base T
Phase pin Ⓕ should be fitted in the long hole of the sub-slider arm.
Reel selector slider (After attaching the sub-slider arm, return the reel base to the original position (L cassette).)
(Position when L cassette is set)

Fig. 13

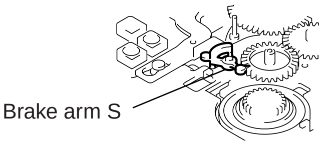
3-18. MAIN SLIDER, MAIN SLIDER ARM AND PENDULUM STOPPER ASSEMBLY

Disassembly: Remove them in order of ①➡②➡③


Main slider ①
② Pendulum stopper assembly
③ Main slider arm
Fixing shaft of main slider arm
Bent portions
Fixing hole of main slider arm

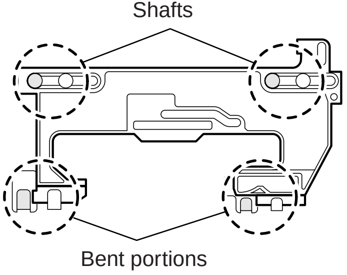
Disassembly of each part

The main slider controls several parts. Before removing the main slider, remove “Brake arm S” at the front of the chassis while referring to “Information” on page 5-4. Otherwise, the main slider cannot be removed.



Main slider

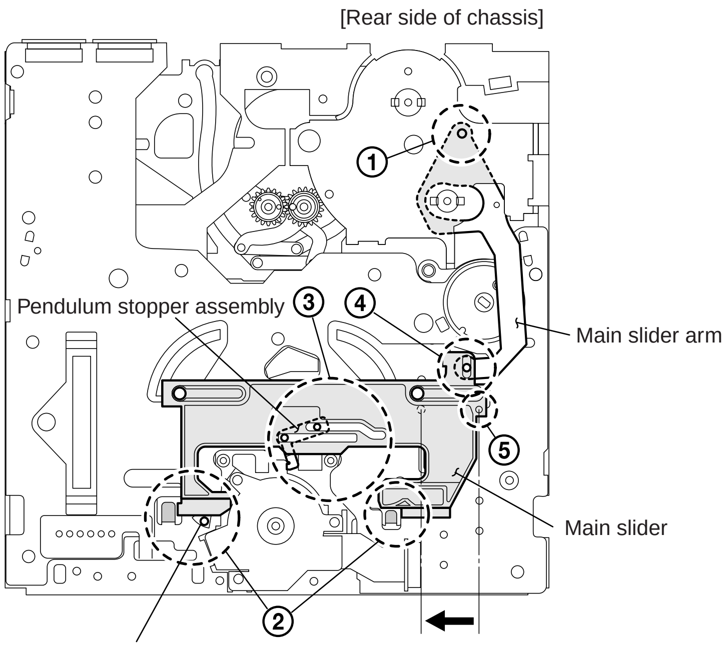
The main slider is fixed by the two shafts and the two bent portions at the rear of the chassis. The main slider can be removed when it is moved to the rightmost end (▨ positions).


Shafts
Bent portions

Assembly: Attach them while referring to the figure above or below and the descriptions.

Assembly of each part

Attach each part while referring to the figure above or below. When attaching the parts, adjust the positions carefully while referring to the instructions in the figure below. Because these positioning will be used as a reference when assembling in future, make sure to adjust the positions and phases correctly.


[Rear side of chassis]
①
Pendulum stopper assembly ③ ④
Main slider arm
⑤
Main slider
②

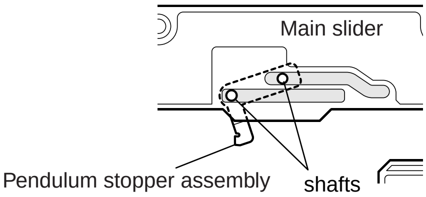
The shaft of the ratchet brake T should be at the position where it can be viewed fromthe outside as shown in the figure.

Move the main slider so that the positioning holes are superimposed.

① Insert the main slider arm into the fixing hole and attach it to the fixing shaft at the front of the chassis while referring to the figure above. (To facilitate assembly, stick adhesive tape so that the main slider arm does not drop.)

② Perform assembly so that the main slider can pass under the bent portion of the chassis. If “Ratchet brake T” remains, move down the “Ratchet brake T” as shown in the left figure and attach the main slider.

③ Carefully attach the pendulum stopper assembly so that the two shafts fit in the two long holes of the main slider.

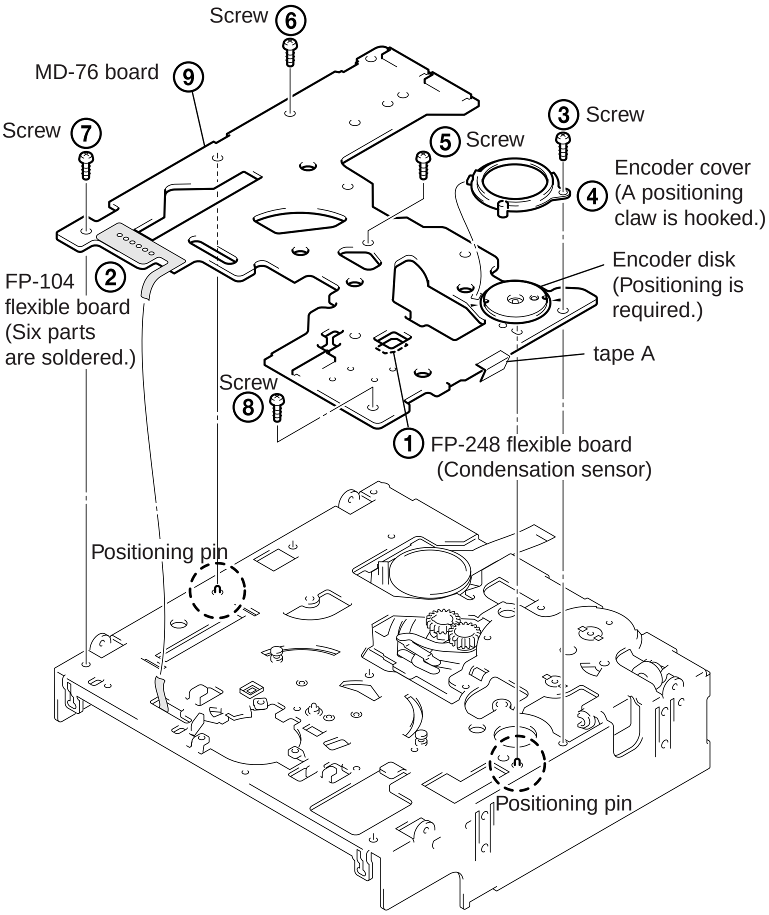

Main slider
Pendulum stopper assembly
shafts

④ Attach the shaft of the main slider arm to the long hole of the main slider.

⑤ Move the main slider to the leftmost end so that the small positioning hole of the main slider is superimposed on the small positioning hole of the chassis, and fix the main slider. The position where the main slider is fixed will be used as a reference during assembling and phase adjustment in future.
(To avoid affecting the main unit, fix the reel motor and main slider with adhesive tape, etc.)

3-19. MD-76 BOARD AND ENCODER RETAINER

Disassembly: Remove them in order of ①➡②➡③➡④➡⑤➡⑥➡⑦➡⑧➡⑨

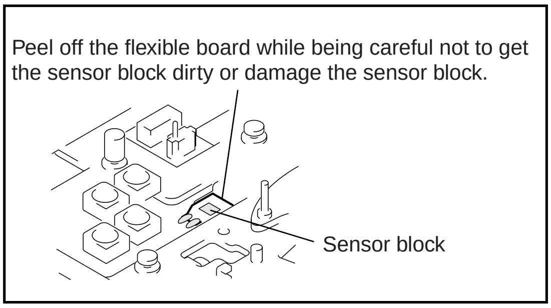

Screw ⑥
MD-76 board ⑨
Screw ⑦
③ Screw
⑤ Screw
Encoder cover
④ (A positioning claw is hooked.)
Encoder disk
(Positioning is required.)
FP-104 ②
flexible board
(Six parts are soldered.)
tape A
Screw
⑧
① FP-248 flexible board
(Condensation sensor)
Positioning pin
Positioning pin

Disassembly of MD-76 board

Peel off the FP-248 flexible board at the front of the chassis (refer to page 5-14). Remove the six solders on the FP-104 flexible board from the rear of the chassis. Remove the screws in order of ③ to ⑧ shown in the figure. When removing the MD-76 board from the chassis, be careful not to let the sensors touch the chassis.

Note: When the tape A is removed, use the new tape A for replacement. (See the illustration below.)

FP-248 flexible board

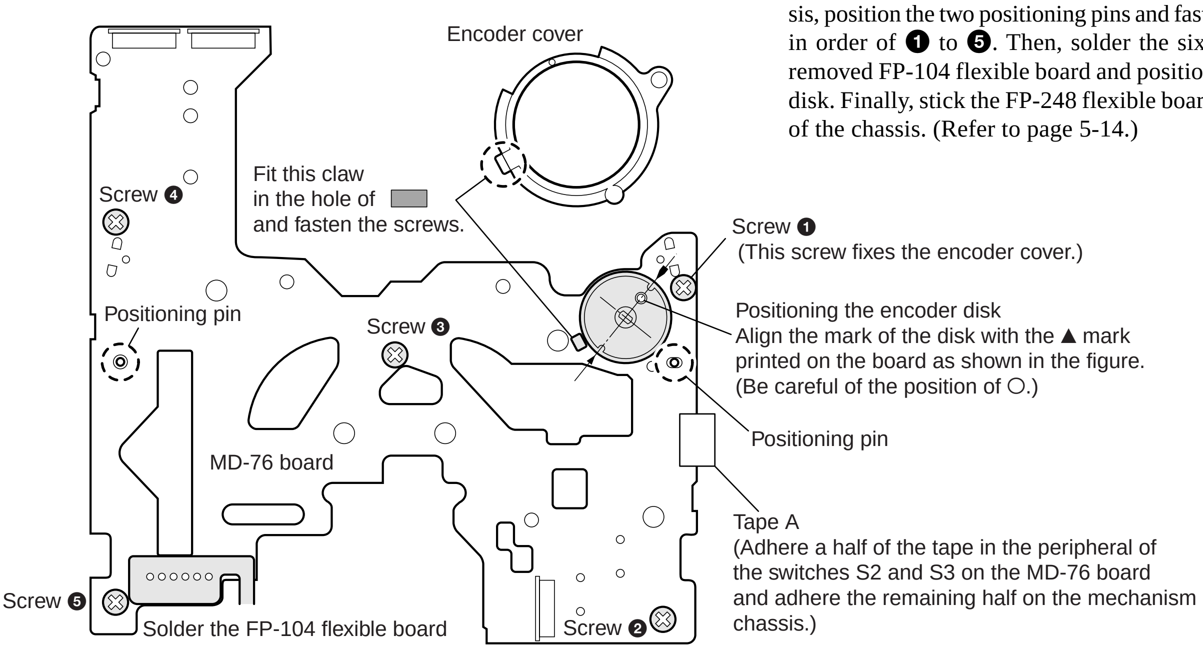

Peel off the flexible board while being careful not to get the sensor block dirty or damage the sensor block.

Sensor block

Assembly: Attach them in order of ⑨➡④➡③➡⑤➡⑥➡⑦➡⑧➡①➡②
(Refer to the figure above or below.)

Assembly of MD-76 board

While being careful not to let the sensors touch the chassis, position the two positioning pins and fasten the screws in order of ❶ to ❺. Then, solder the six parts on the removed FP-104 flexible board and position the encoder disk. Finally, stick the FP-248 flexible board on the front of the chassis. (Refer to page 5-14.)


Encoder cover
Screw ❹
Screw ❶
Positioning pin
Screw ❸
MD-76 board
Positioning pin
Screw ❺
Screw ❷

Fit this claw in the hole of ▨ and fasten the screws.

Screw ❶ (This screw fixes the encoder cover.)

Positioning the encoder disk
Align the mark of the disk with the ▲ mark printed on the board as shown in the figure.
(Be careful of the position of ○.)

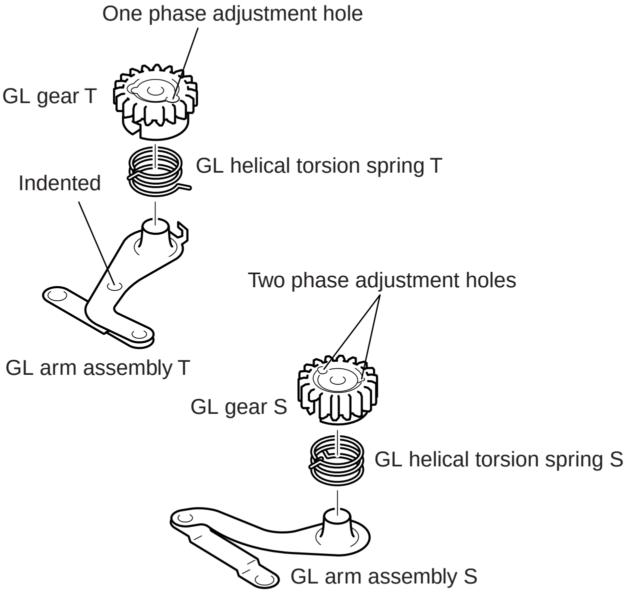
Tape A
(Adhere a half of the tape in the peripheral of the switches S2 and S3 on the MD-76 board and adhere the remaining half on the mechanism chassis.)

Solder the FP-104 flexible board (six parts).
Temperature of tip of soldering iron: 350 ± 20 °C
Hold time: one second or shorter

Tightening torque of MD-76 board
0.3432 ± 0.0196 N·m (3.5 ± 0.2 kg • cm)

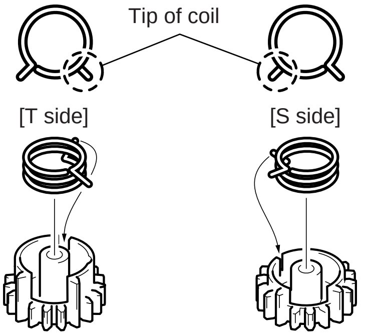
3-20. COMPONENTS OF GL ARM S/T ASSEMBLY (GL ARM ASSEMBLY, GL HELICAL TORSION SPRING, GL GEAR)

Disassembly and distinguishing the S side from the T side


One phase adjustment hole
GL gear T
GL helical torsion spring T
Indented
Two phase adjustment holes
GL arm assembly T
GL gear S
GL helical torsion spring S
GL arm assembly S

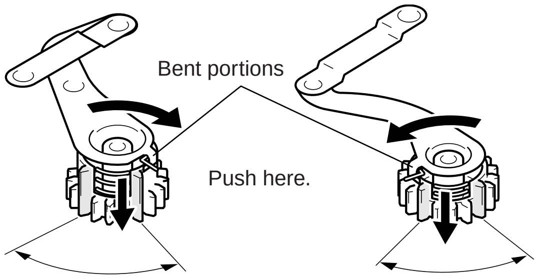
Assembly

① Attach each GL helical torsion spring to the GL gear. To distinguish the S side from the T side when the opening of the spring tip is facing toward the front, note that the coil tip of the S side is located on the left and that of the T side is located on the right.


Tip of coil
[T side]
[S side]

Fit the tip of the spring into the small cut-out of the GL gear.

② Hook the tip of the spring on the bent portion of the GL arm assembly and push the bent portion of the GL arm into the large cut-out of the GL gear while rotating the GL gear in the direction of the arrow.

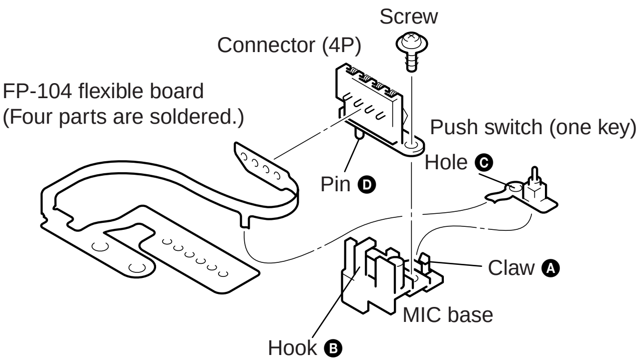

Bent portions
Push here.

When the bent portion of the GL arm comes inside this range, push the bent portion into the gear.

3-21. COMPONENTS OF MIC BASE ASSEMBLY (FP-104 FLEXIBLE BOARD, MIC BASE)

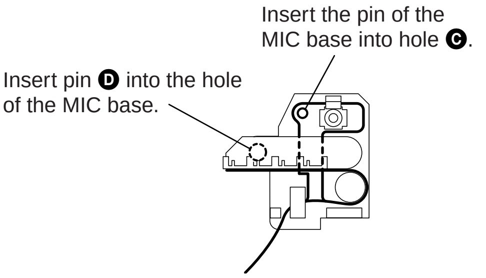
Disassembly

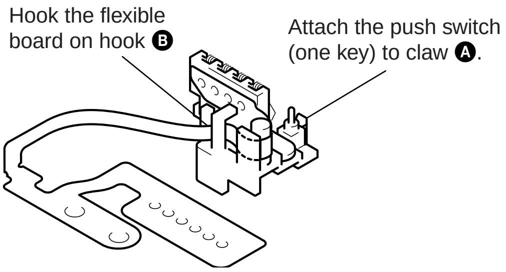
Remove the push switch from claw Ⓐ of the MIC base. Remove the screw and connector (4P). Then, remove the flexible board while being careful not to touch hook Ⓑ.


Screw
Connector (4P)
FP-104 flexible board
(Four parts are soldered.)
Push switch (one key)
Hole Ⓒ
Pin Ⓓ
Claw Ⓐ
MIC base
Hook Ⓑ

Tightening torque of connector (4P)
0.0392 ± 0.0098N • m (0.4 ± 0.1 kg • cm)

Assembly


Insert the pin of the
MIC base into hole Ⓒ.
Insert pin Ⓓ into the hole
of the MIC base.

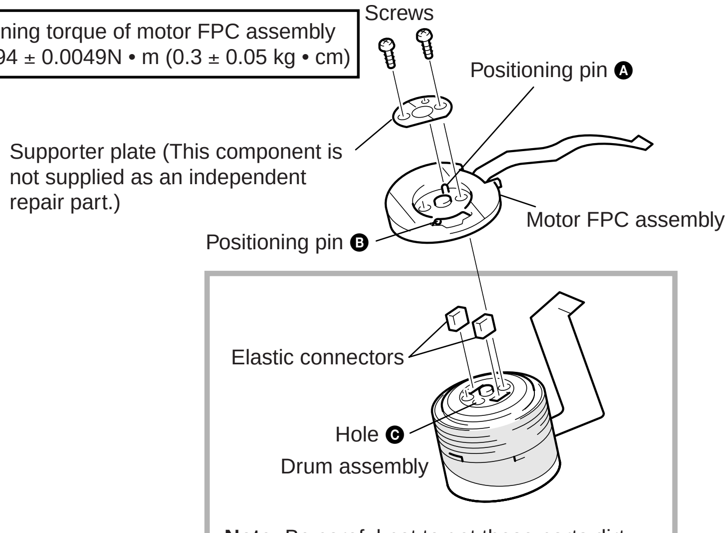

Hook the flexible
board on hook Ⓑ
Attach the push switch
(one key) to claw Ⓐ.

3-22. COMPONENTS OF DRUM ASSEMBLY (MOTOR FPC ASSEMBLY, ELASTIC CONNECTOR)

Disassembly/Assembly

Connect the elastic connector to the drum assembly and attach the motor FPC assembly while aligning pin Ⓑ with hole Ⓒ of the drum assembly. Fix the supporter plate with the screws while being careful of pin Ⓐ of the motor FPC assembly.

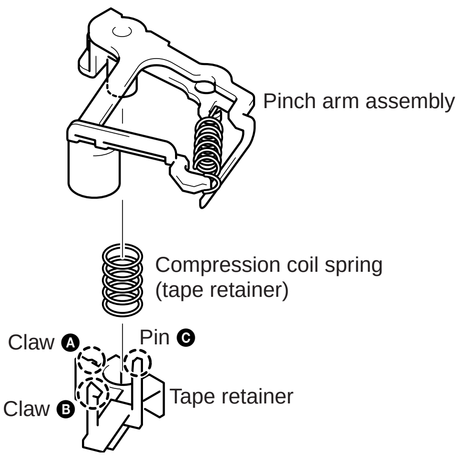
Tightening torque of motor FPC assembly
0.0294 ± 0.0049N • m (0.3 ± 0.05 kg • cm)

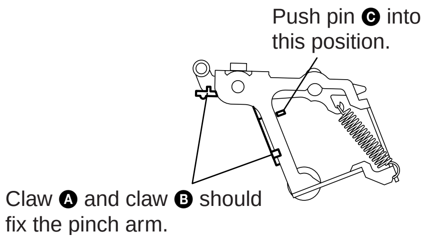

Screws
Positioning pin Ⓐ
Supporter plate (This component is not supplied as an independent repair part.)
Motor FPC assembly
Positioning pin Ⓑ
Elastic connectors
Hole Ⓒ
Drum assembly

Note: Be careful not to get these parts dirty when handling them.Also, do not touch the running side of the tape.

3-23. COMPONENTS OF PINCH ARM ASSEMBLY (TAPE RETAINER, COMPRESSION COIL SPRING)

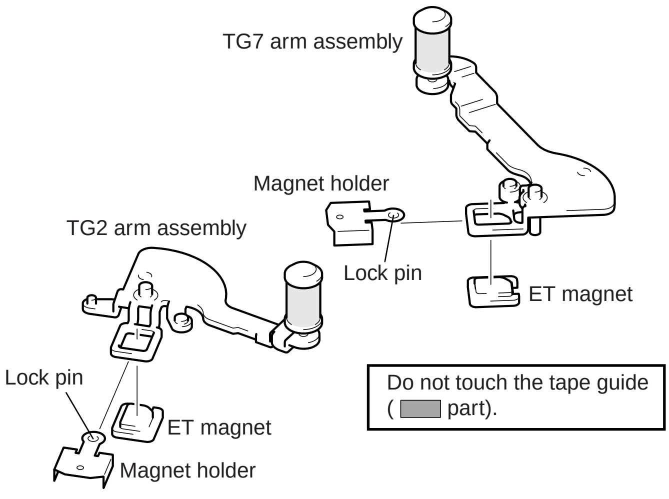
Disassembly/Assembly


Pinch arm assembly
Compression coil spring (tape retainer)
Claw Ⓐ
Pin Ⓒ
Claw Ⓑ
Tape retainer


Push pin Ⓒ into this position.
Claw Ⓐ and claw Ⓑ should fix the pinch arm.

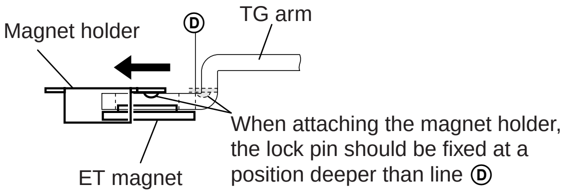
3-24. COMPONENTS OF TG2/7 ARM ASSEMBLY (ET MAGNET, MAGNET HOLDER)

Disassembly/Assembly


TG7 arm assembly
Magnet holder
TG2 arm assembly
Lock pin
ET magnet
Lock pin
ET magnet
Magnet holder

Do not touch the tape guide (▨ part).

Remove the TG2 arm assembly and the TG7 arm assembly in the direction of the arrow while pushing the lock pin of the magnet holder from the rear of each TG arm. To attach them, insert the TG2 or TG7 arm assembly in the direction opposite to the arrow while holding the ET magnet with the magnet holder, then hook the lock pin.

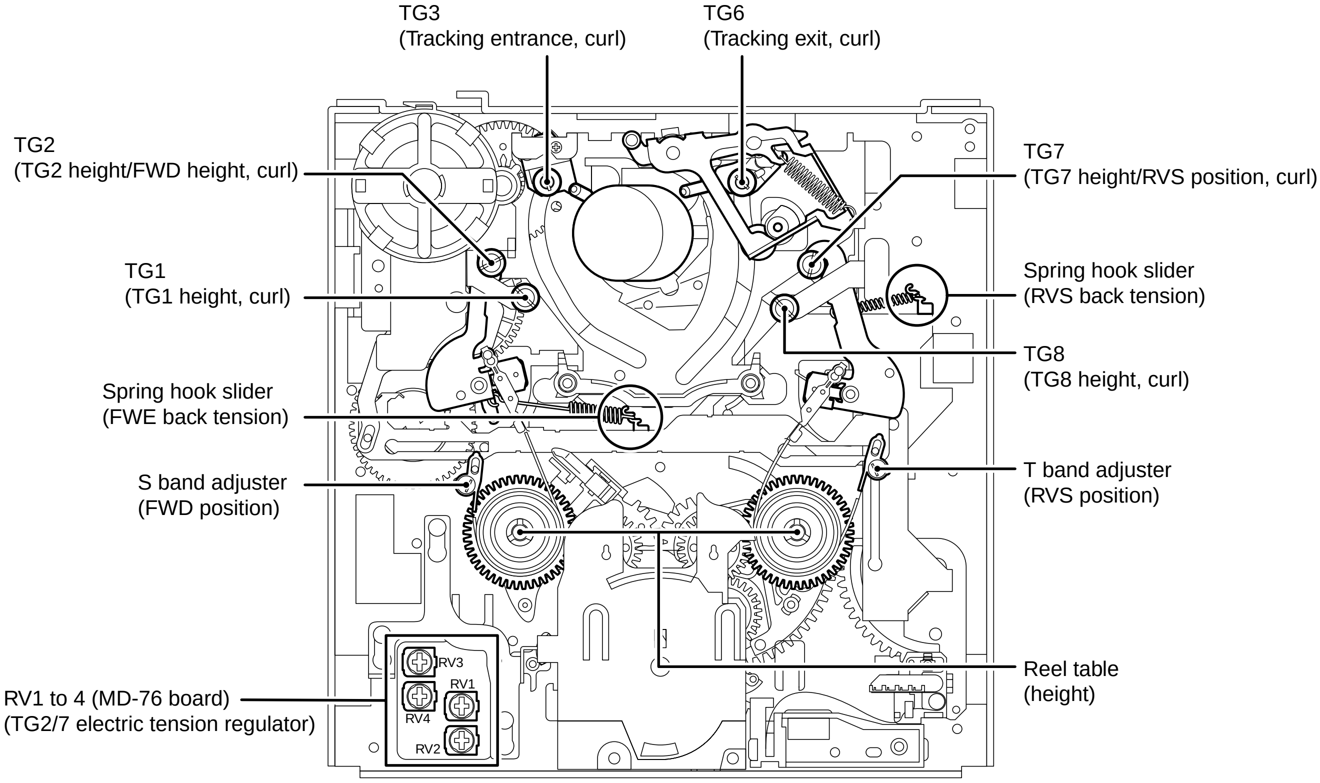

Magnet holder
Ⓓ
TG arm
ET magnet

When attaching the magnet holder, the lock pin should be fixed at a position deeper than line Ⓓ

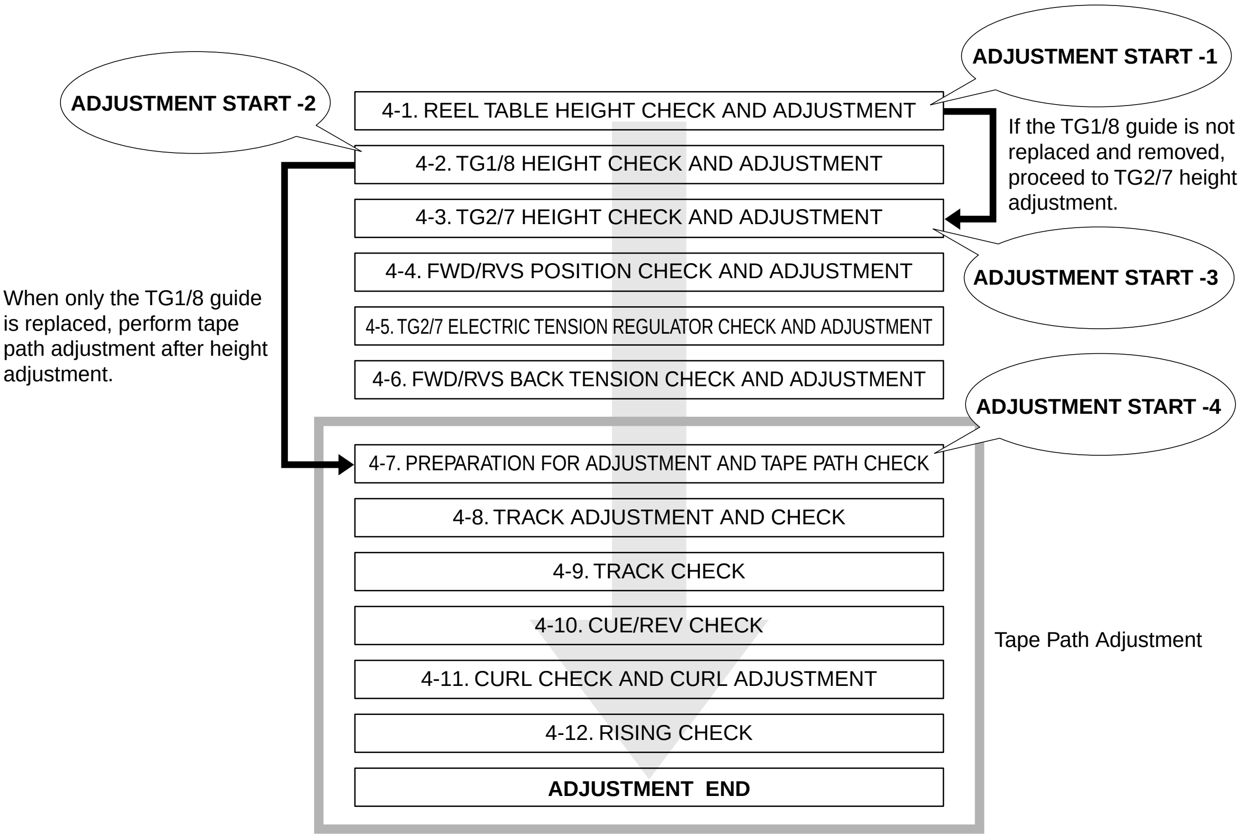
5-1-4. CHECK AND ADJUSTMENT

- When the parts of the tape path (tape guide, reel table, etc.) have been removed or parts have been replaced, adjust the following parts according to the flowchart below.

- **ADJUSTMENT POSITION**


TG3
(Tracking entrance, curl)
TG6
(Tracking exit, curl)
TG2
(TG2 height/FWD height, curl)
TG7
(TG7 height/RVS position, curl)
TG1
(TG1 height, curl)
Spring hook slider
(RVS back tension)
TG8
(TG8 height, curl)
Spring hook slider
(FWE back tension)
S band adjuster
(FWD position)
T band adjuster
(RVS position)
Reel table
(height)
RV1 to 4 (MD-76 board)
(TG2/7 electric tension regulator)
RV3
RV1
RV4
RV2

- **ADJUSTMENT ORDER (FLOWCHART)**

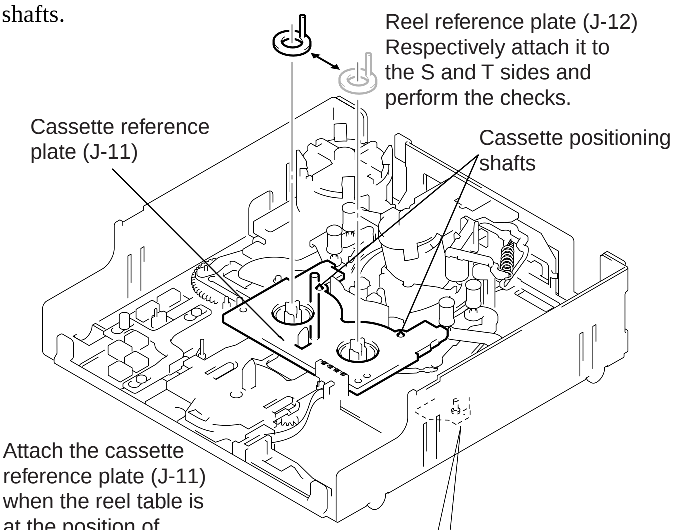

ADJUSTMENT START -1
ADJUSTMENT START -2
4-1. REEL TABLE HEIGHT CHECK AND ADJUSTMENT
4-2. TG1/8 HEIGHT CHECK AND ADJUSTMENT
4-3. TG2/7 HEIGHT CHECK AND ADJUSTMENT
4-4. FWD/RVS POSITION CHECK AND ADJUSTMENT
4-5. TG2/7 ELECTRIC TENSION REGULATOR CHECK AND ADJUSTMENT
4-6. FWD/RVS BACK TENSION CHECK AND ADJUSTMENT
4-7. PREPARATION FOR ADJUSTMENT AND TAPE PATH CHECK
4-8. TRACK ADJUSTMENT AND CHECK
4-9. TRACK CHECK
4-10. CUE/REV CHECK
4-11. CURL CHECK AND CURL ADJUSTMENT
4-12. RISING CHECK
ADJUSTMENT END
If the TG1/8 guide is not replaced and removed, proceed to TG2/7 height adjustment.
ADJUSTMENT START -3
When only the TG1/8 guide is replaced, perform tape path adjustment after height adjustment.
ADJUSTMENT START -4
Tape Path Adjustment

4-1. REEL TABLE HEIGHT CHECK AND ADJUSTMENT

1. Preparation before check

Check that the cassette compartment has already been removed. (Refer to page 5-5.)

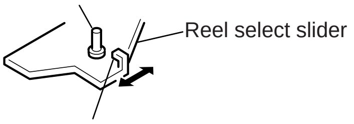
Fit the cassette reference plate (J-11) in the cassette positioning shafts.


Reel reference plate (J-12)
Cassette reference plate (J-11)
Cassette positioning shafts

Respectively attach it to the S and T sides and perform the checks.

Attach the cassette reference plate (J-11) when the reel table is at the position of "S cassette".

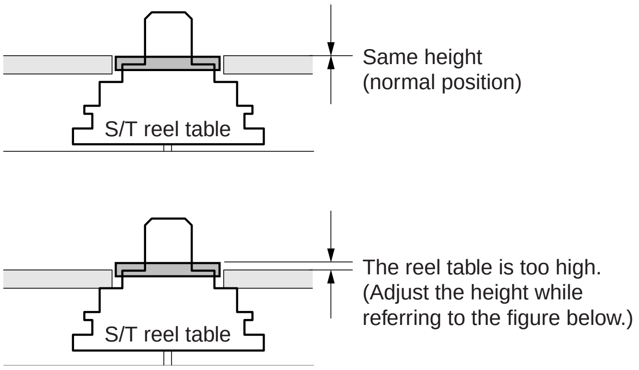
When selecting a cassette position, be careful not to touch the slider drive shaft because it can be easily bent or broken.


Do not touch the slider drive shaft.
Reel select slider

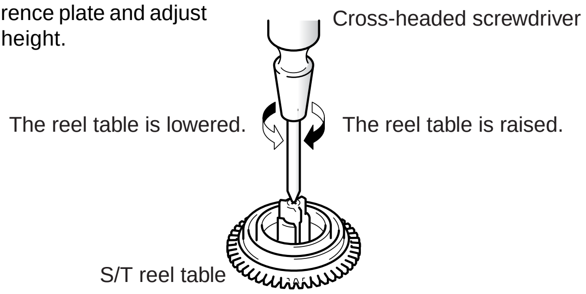
Select the desired cassette position by pressing the claw position.

2. Check and adjustment

Put the reel reference plate (J-12) on each reel table. Rotate the screw block of the reel table so that the height of the cassette reference plate is the same as that of the reel reference plate.


Same height
(normal position)
S/T reel table
The reel table is too high.
(Adjust the height while
referring to the figure below.)
S/T reel table

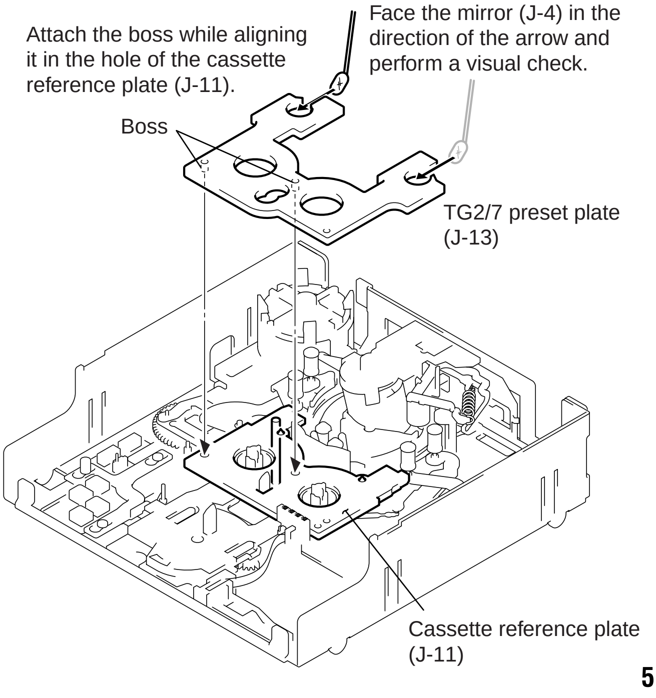
Put the reel and cassette reference plate and adjust the height.


Cross-headed screwdriver
The reel table is lowered.
The reel table is raised.
S/T reel table

4-2. TG1/8 HEIGHT CHECK AND ADJUSTMENT

1. Preparation before check

1) Check that the cassette compartment block has already been removed. (Refer to page 5-5.)
2) Set the mechanism deck to the loading end position (TG2 to 7 already moved to the loading end position and the pinch roller is in the unloading position). Alternatively, set the mechanism deck to the "LE position" using the mode selector II. (Refer to page 5-5.)
3) Place the TG2/7 preset plate (J-13).


Boss
TG2/7 preset plate
(J-13)
Cassette reference plate
(J-11)

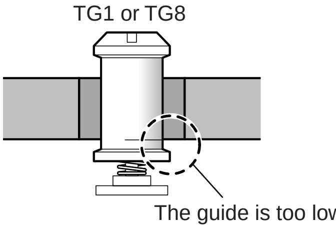
Attach the boss while aligning it in the hole of the cassette reference plate (J-11).

Face the mirror (J-4) in the direction of the arrow and perform a visual check.

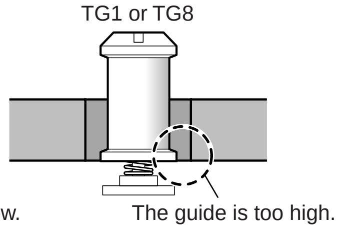
2. Check and adjustment

Rotate the TG upper flange until the heights of the TG2/7 preset plate (J-13) and TG1 or TG8 roller block are the same. Alternatively, rotate the TG upper flange by 120˚ in the direction of lowering the guide from the reference height where the preset plate and roller have the same height.

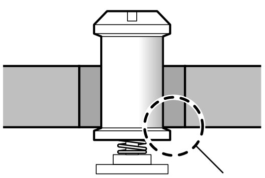
Not good

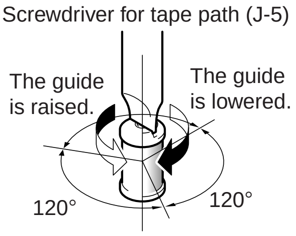

TG1 or TG8
The guide is too low.

Not good


TG1 or TG8
The guide is too high.

Good



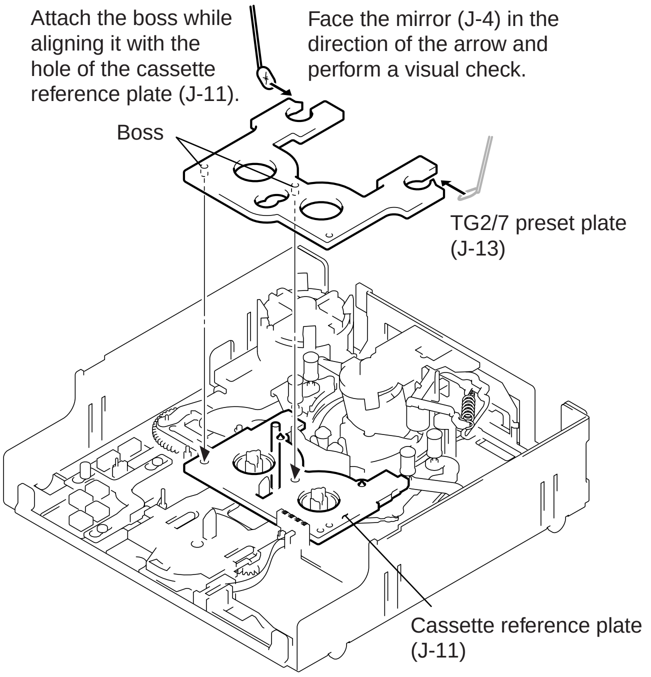

Screwdriver for tape path (J-5)
The guide is raised.
The guide is lowered.
120°
120°

The normal height is the position where the TC upper flange is rotated by 120° in the direction of lowering the guide from the adjusted height while referring to the figure below.

4-3. TG2/7 HEIGHT CHECK AND ADJUSTMENT

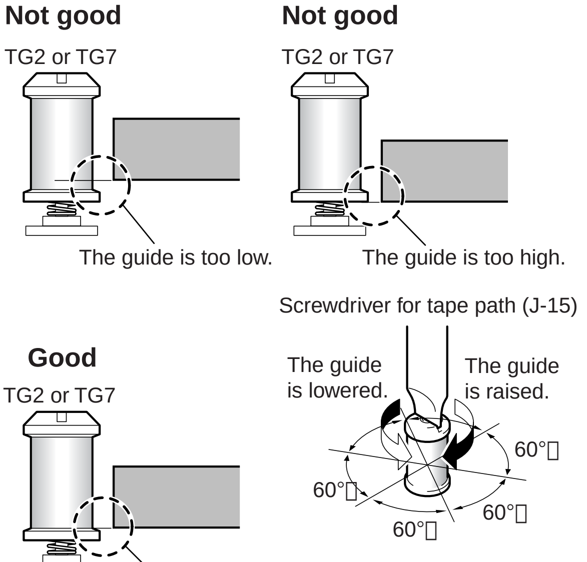
1. Preparation before check

1) Check that the cassette compartment block has already been removed. (Refer to page 5-5.)
2) Set the mechanism deck to the loading end position (TG2 to 7 already moved to the loading end position and the pinch roller is in the unloading position). Alternatively, set the mechanism deck to the "LE position" using the mode selector II. (Refer to page 5-5.)
3) Place the TG2/7 preset plate (J-13).


Attach the boss while aligning it with the hole of the cassette reference plate (J-11).
Face the mirror (J-4) in the direction of the arrow and perform a visual check.
Boss
TG2/7 preset plate (J-13)
Cassette reference plate (J-11)

2. Check and adjustment

Rotate the TG upper flange until the height of the TG2/7 preset plate (J-13) and TG2 or TG7 roller block is the same. Alternatively, rotate the TG upper flange of only TG2 by 60˚ in the direction of raising the guide from the adjusted height while referring to the figure below.


Not good
TG2 or TG7
The guide is too low.
Not good
TG2 or TG7
The guide is too high.
Good
TG2 or TG7
Screwdriver for tape path (J-15)
The guide is lowered.
The guide is raised.
60°
60°
60°
60°

The normal height of TG2 is the position where the TC upper flange is rotated by 60° in the direction of raising the guide from the adjusted height while referring to the figure below.
The normal height of TG7 is the current one.

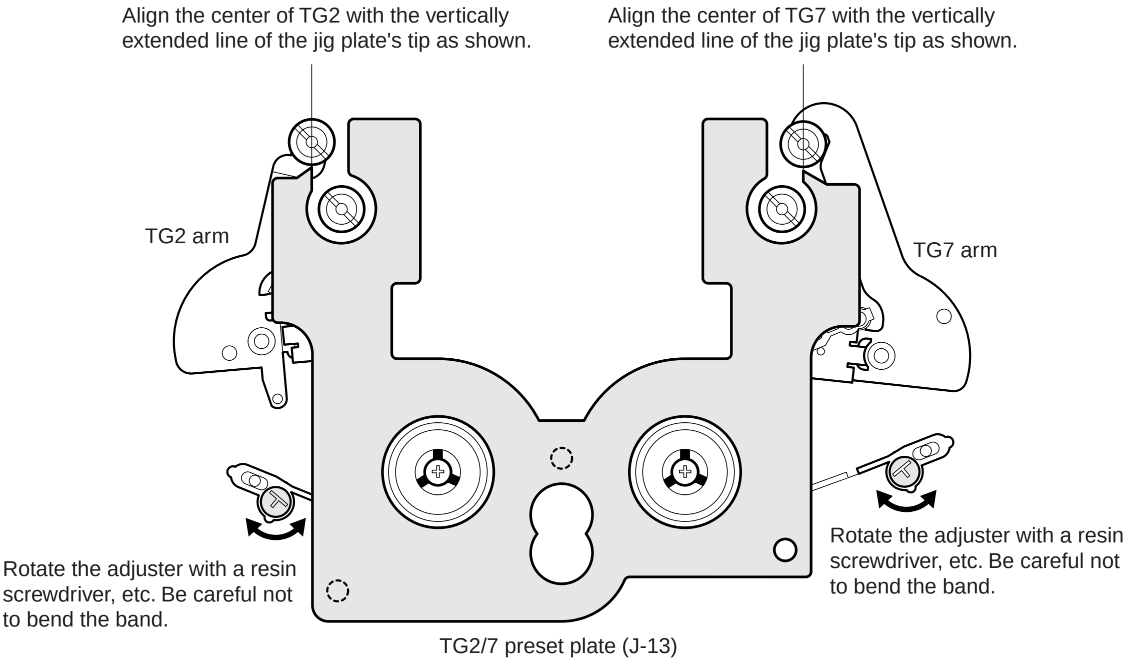
4-4. FWD/RVS POSITION CHECK AND ADJUSTMENT

1. Preparation before check

1) Check that the cassette compartment block has already been removed. (Refer to page 5-5.)
2) Set the mechanism deck to the loading end position (TG2 to 7 already moved to the loading end position and the pinch roller is in the unloading position). Alternatively, set the mechanism deck to the "LE position" using the mode selector II. (Refer to page 5-5.)
3) Place the TG2/7 preset plate (J-13).

2. Check and adjustment

Rotate each adjuster to adjust the TG2/7 position until ⟋ or ⟍ of the TG2/7 preset plate (J-13), TG2 and TG7 are in line.

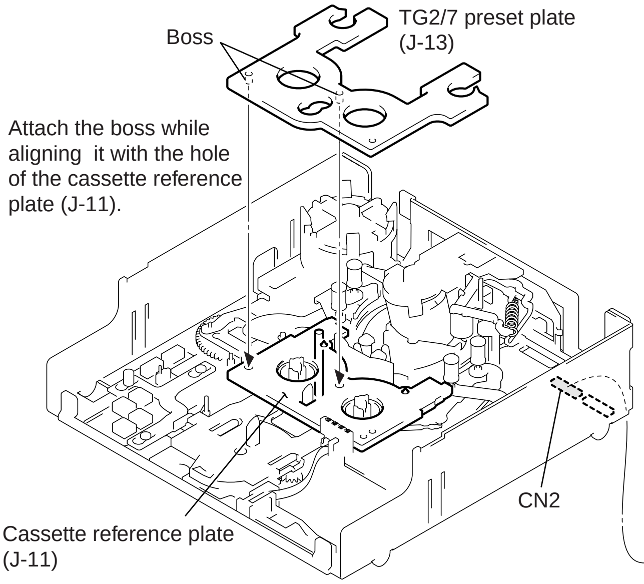

Align the center of TG2 with the vertically extended line of the jig plate's tip as shown.
Align the center of TG7 with the vertically extended line of the jig plate's tip as shown.
TG2 arm
TG7 arm
Rotate the adjuster with a resin screwdriver, etc. Be careful not to bend the band.
Rotate the adjuster with a resin screwdriver, etc. Be careful not to bend the band.

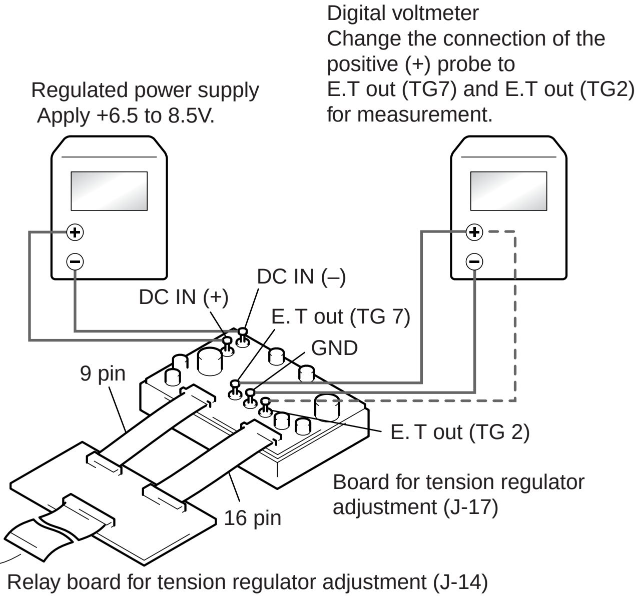
TG2/7 preset plate (J-13)

4-5. ELECTRIC TENSION REGULATOR CHECK AND ADJUSTMENT OF TG2/7 ARM

1. Preparation before check

1) Check that the cassette compartment block has already been removed. (Refer to page 5-5.)
2) Set the mechanism deck to the loading end position (TG2 to 7 already moved to the loading end position and the pinch roller is in the unloading position). Alternatively, set the mechanism deck to the “LE position” using the mode selector II (J-9). (Refer to page 5-5.)
3) Attach the cassette reference plate (J-11) and TG2/7 preset plate (J-13). (Refer to page 5-25.)
4) Connect the relay board for tension regulator adjustment (J-14) and other equipment as shown in the figure below.

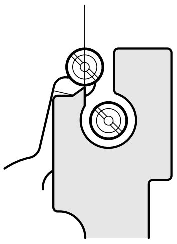

Boss
TG2/7 preset plate
(J-13)
Attach the boss while aligning it with the hole of the cassette reference plate (J-11).
CN2
Cassette reference plate
(J-11)


Regulated power supply
Apply +6.5 to 8.5V.
Digital voltmeter
Change the connection of the positive (+) probe to E.T out (TG7) and E.T out (TG2) for measurement.
DC IN (+)
DC IN (–)
E. T out (TG 7)
GND
9 pin
E. T out (TG 2)
Board for tension regulator adjustment (J-17)
16 pin
Relay board for tension regulator adjustment (J-14)

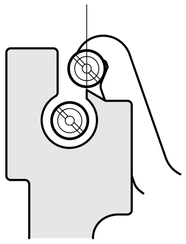
2. Check and adjustment

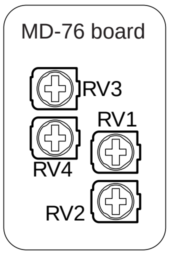
Connect the positive (+) probe of a digital voltmeter to E.T out (TG2: for measurement of TG2 data) or to E.T out (TG7: for measurement of TG7 data). First, press the guide to the TG2/7 preset plate (J-13), then release your hand from the guide and read the voltmeter value. Adjust RV4 (TG2 side) or RV2 (TG7 side) until the voltmeter measurement is 2.5 ± 0.1 V (TG2 side) or 2.2 ± 0.1 V (TG7 side) when releasing your hand. Then press the guide to the TG2/7 preset plate (J-13). Adjust RV3 (TG2 side) or RV1 (TG7 side) until the voltmeter measurement is 1.3 ± 0.1 V.

[2.5V adjustment of TG2]
Release your hand from the guide and rotate RV4.

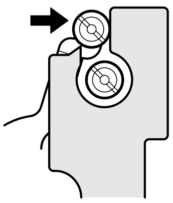


[2.2V adjustment of TG7]
Release your hand from the guide and rotate RV2.

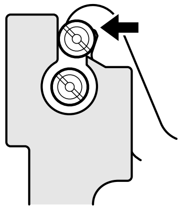



MD-76 board
RV3
RV1
RV4
RV2

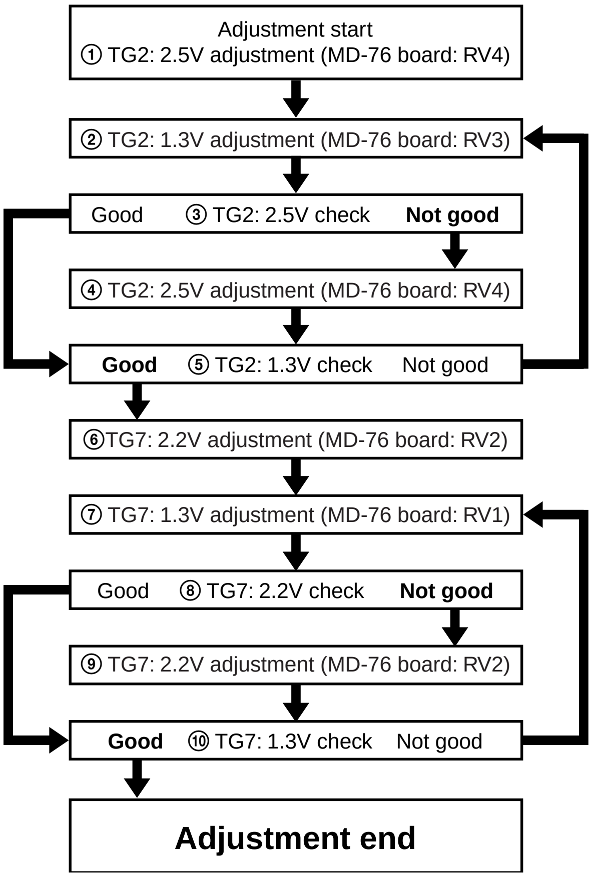
[1.3V adjustment of TG2]
Rotate RV3 while pushing the guide.



[1.3V adjustment of TG7]
Rotate RV1 while pushing the guide.



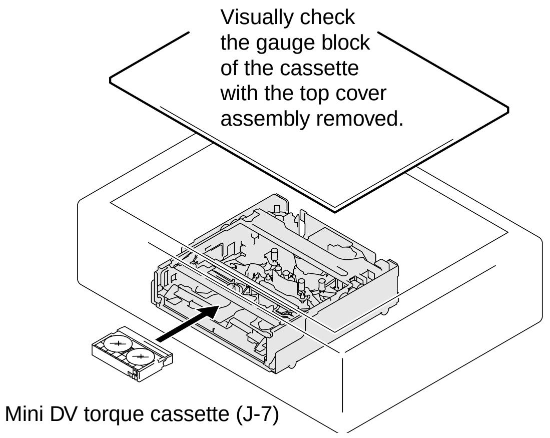
[Adjustment order]


Adjustment start
① TG2: 2.5V adjustment (MD-76 board: RV4)
② TG2: 1.3V adjustment (MD-76 board: RV3)
Good
③ TG2: 2.5V check
Not good
④ TG2: 2.5V adjustment (MD-76 board: RV4)
Good
⑤ TG2: 1.3V check
Not good
⑥TG7: 2.2V adjustment (MD-76 board: RV2)
⑦ TG7: 1.3V adjustment (MD-76 board: RV1)
Good
⑧ TG7: 2.2V check
Not good
⑨ TG7: 2.2V adjustment (MD-76 board: RV2)
Good
⑩ TG7: 1.3V check
Not good
Adjustment end

4-6. FWD/RVS BACK TENSION CHECK AND ADJUSTMENT

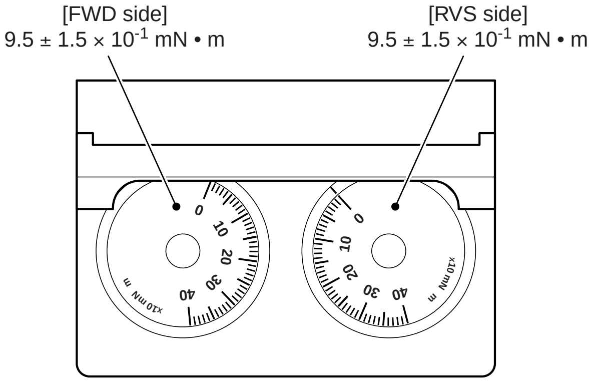
1. Preparation before check

Mount the mechanism deck in the main unit, connect all the connectors, then insert the mini DV torque cassette (J-7) into the mechanism block.



Visually check the gauge block of the cassette with the top cover assembly removed.

Mini DV torque cassette (J-7)



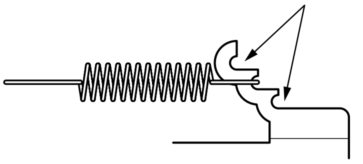
[FWD side]
$9.5 \pm 1.5 \times 10^{-1}$ mN • m

[RVS side]
$9.5 \pm 1.5 \times 10^{-1}$ mN • m

2. Check and adjustment

- FWD (TG2) side

The torque value should satisfy $9.5 \pm 1.5 \times 10^{-1}$ mN • m while the mini DV torque cassette runs in the FWD mode. If it does not satisfy this, take the following measure.

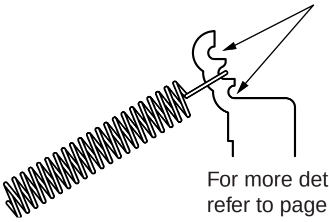


Re-attach the spring to the upper hook if the measurement value is beyond the specifications or re-attach the spring to the lower hook if the measurement value is below the specifications. Then, repeat the measurement.

For more details, refer to page 5-23.

- RVS (TG7) side

The torque value should satisfy $9.5 \pm 1.5 \times 10^{-1}$ mN • m while the mini DV torque cassette runs in the RVS mode. If it does not satisfy this, take the following measure.



Re-attach the spring to the upper hook if the measurement value is beyond the specifications or re-attach the spring to the lower hook if the measurement value is below the specifications. Then, repeat the measurement.
Be careful that these spring blocks may hinder the FL motor.

For more details, refer to page 5-23.

4-7. PREPARATION FOR ADJUSTMENT AND TAPE PATH CHECK

Preparation before adjustment (connection and setting)

1. Mount the mechanism deck in the main unit.
   (Connect all the connectors.)

2. Clean the tape running side.
   (Refer to "5-1-2. Periodic check".)

3. Connect an oscilloscope to RP-234 board CN201 via the CPC-13 jig (J-6082-388-A)(J-18).
   Channel 1: RP-234 board, CN201 Pin ⑧ (Note)
   External trigger: RP-234 board, CN007 Pin ⑥

Note: Connect a 75 Ω resistor between pins ⑧ of CN007 and ⑦ (GND).
75 Ω resistor (Parts code: 1-247-804-11)

4. Connect the adjustment remote commander (J-8) to the CONTROL jack (LANC jack).

5. Turn the HOLD switch of the adjustment remote commander to the ON position.

6. Select page: 3, address: 33, set data: 08 and press the PAUSE button.

7. Select page: 3, address: 26, set data: 31 and press the PAUSE button.

Procedure after operations

1. Connect the adjustment remote commander to the CONTROL jack (LANC jack).

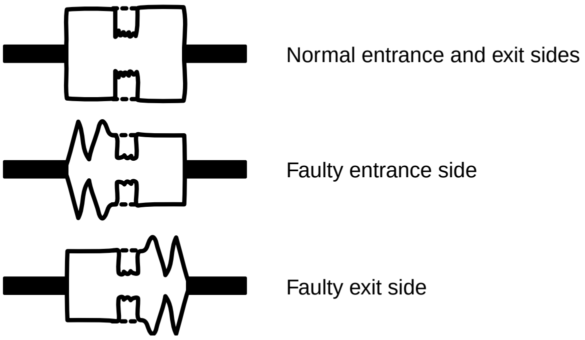
2. Turn the HOLD switch of the adjustment remote commander to the ON position.

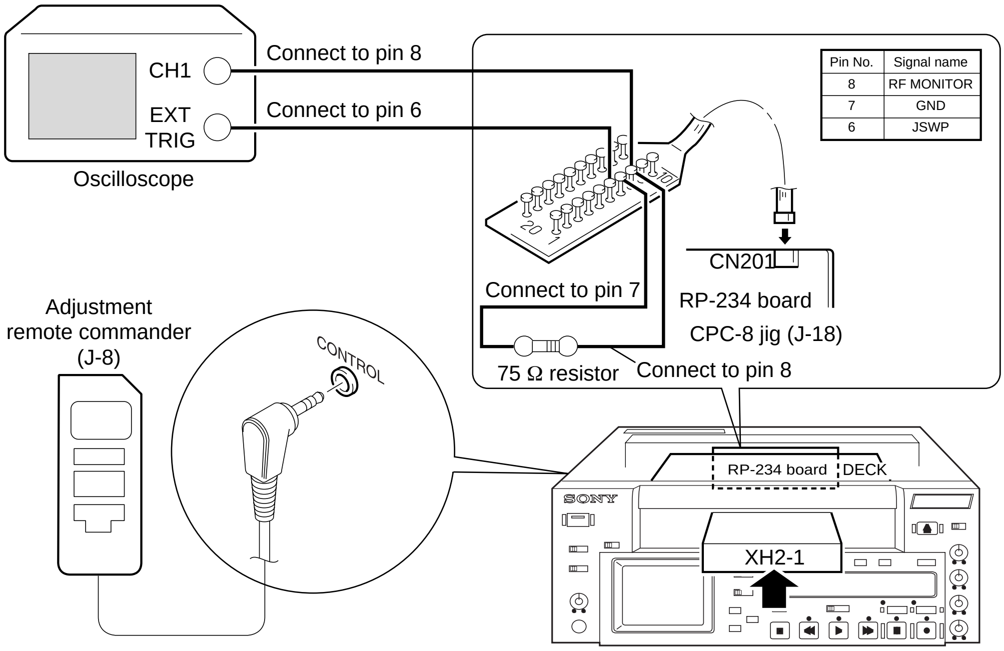
3. Select page: 3, address: 33, set data: 00 and press the PAUSE button.

4. Select page: 3, address: 26, set data: 00 and press the PAUSE button.

Tape path check (checking the RF waveform)

Play back the tracking tape (J-6) and check the states at the entrance and exit of the RF waveform. If it is not flat at either side, perform the adjustments from Adjustment Start-4 in the flowchart on page 5-23.


Normal entrance and exit sides
Faulty entrance side
Faulty exit side


CH1
EXT TRIG
Oscilloscope
Connect to pin 8
Connect to pin 6
Connect to pin 7
75 Ω resistor
Connect to pin 8
CN201
RP-234 board
CPC-8 jig (J-18)
20
1
Adjustment remote commander (J-8)
CONTROL
RP-234 board
DECK
SONY
XH2-1

Pin No.	Signal name
8	RF MONITOR
7	GND
6	JSWP

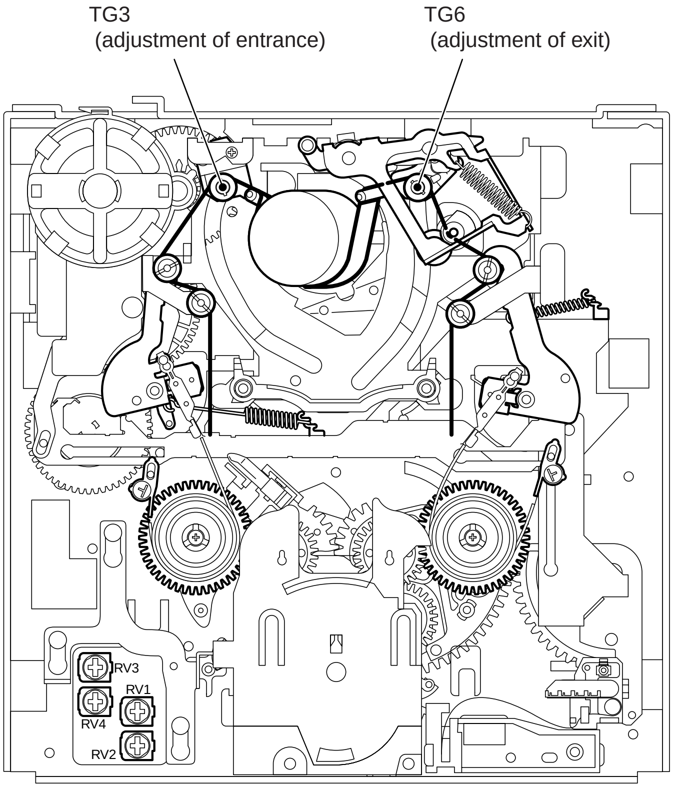
4-8. TRACK ADJUSTMENT AND CHECK (Checking the RF Waveform)

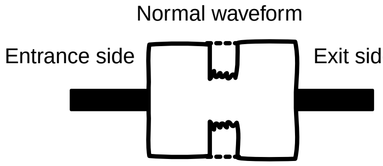
• Checking the RF waveform

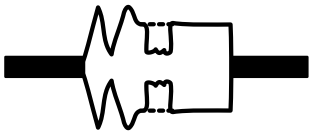
Check that the RF waveforms at both the entrance and exit are flat while the tracking tape (J-6) runs in the PLAY mode.

• If not flat

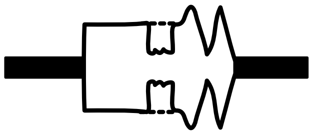
If the waveform at the entrance is bad, rotate TG3. If the waveform at the exit is bad, rotate TG6 to flatten the waveform.


TG3
(adjustment of entrance)
TG6
(adjustment of exit)
RV3
RV1
RV4
RV2


Normal waveform
Entrance side
Exit side



If the waveform at the entrance is bad, rotate TG3 to adjust the waveform.



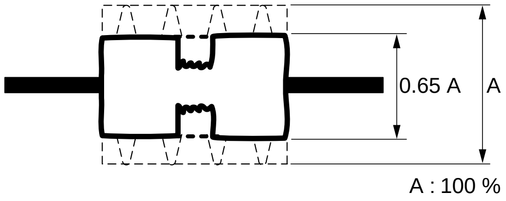
If the waveform at the exit is bad, rotate TG6 to adjust the waveform.

4-9. TRACK CHECK

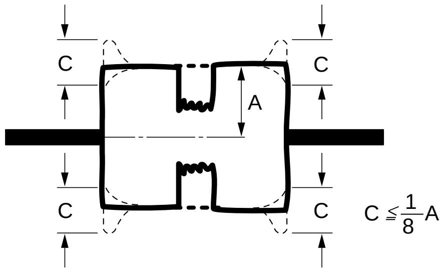
• Check

The difference between the maximum value and minimum value of the waveform amplitude during playback of the tracking tape (J-6) in the FWD mode should be 30% or less of the waveform amplitude during the CUE (or REV) mode (which is taken as 100% as shown). At the same time, there must not exist too much fluctuation of waveform amplitude.

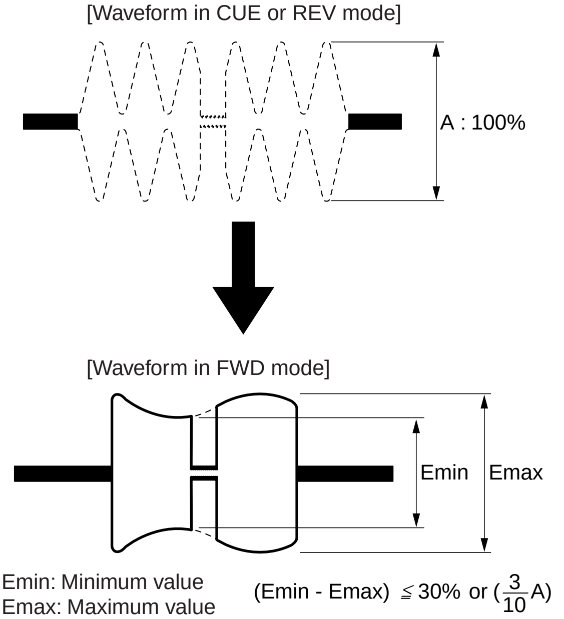
Tracking waveform check -1



Tracking waveform check -2



The waveform should not change sharply.


[Waveform in CUE or REV mode]
A : 100%
[Waveform in FWD mode]
Emin
Emax

Emin: Minimum value
Emax: Maximum value

$(\text{Emin} - \text{Emax}) \leq 30\%$ or $(\frac{3}{10}\text{A})$

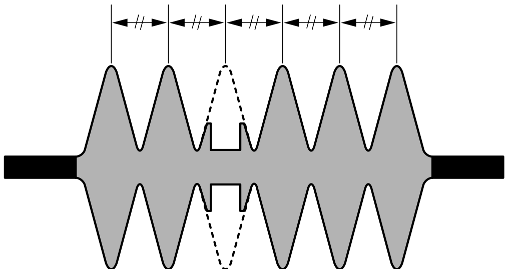
4-10. CUE/REV CHECK

• Check

Check that the intervals of the waveform peaks are consistent while the tracking tape (J-6) runs in the CUE mode or REV mode.

[Waveform in CUE or REV mode]

The intervals of the waveform peaks must be consistent.



• If not even

If the waveform peaks are not even, perform Section 4-8, "Tacking adjustment".

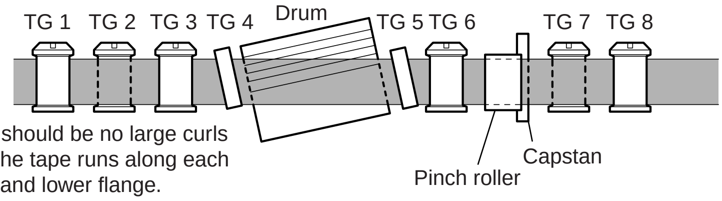
4-11. CURL CHECK AND ADJUSTMENT

• Check

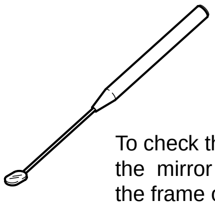
Check that the tape runs along each upper and lower flange while the tracking tape (J-6) runs in the CUE or REV mode. Also check that there are no large curls on each tape guide and pinch roller.

• If the curl is large

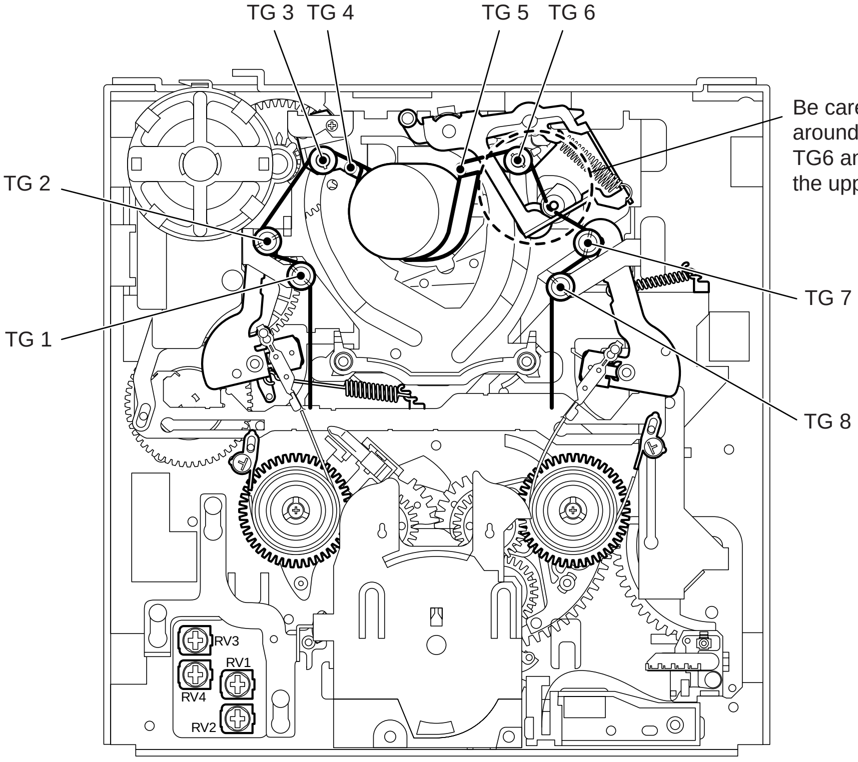
Perform the adjustment from Adjustment Start -3 (TG7 side) of the flowchart on page 5-23 again.



There should be no large curls while the tape runs along each upper and lower flange.



To check the tape path visually, use the mirror (J-4) to facilitate check as the frame of the cassette compartment hinders operations.



Be careful that there are often large curls around the capstan and pinch roller between TG6 and TG7. If there are large curls, rotate the upper flange of TG7 to remove the curls.

4-12. RISING CHECK

• Check

Check that when the tracking tape (J-6) is switched from the STOP, CUE, REV, FF, REW modes to the PLAYBACK mode, the waveform rises horizontally within 2 seconds. (Perform this 2 or 3 times.)

• Check after checking rising

STOP → PLAYBACK

CUE → PLAYBACK

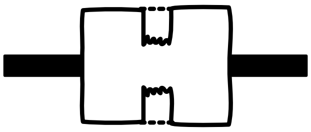
REV → PLAYBACK

FF → PLAYBACK

REW → PLAYBACK

- Check that the tape loads and unloads smoothly.
- Play a self-recorded or already recorded tape, and check that the sound and images are normal.

When switching the modes, the waveform should rise horizontally within 2 seconds.



5-2. SERVICE MODE

5-2-1. ADJUSTING REMOTE COMMANDER

The adjusting remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjusting remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Used Adjustment Remote Commander

1) With the unit set in STANDBY mode, connect the adjusting remote commander to the remote (LANC) terminal.
2) Adjust the HOLD switch of the adjusting remote commander to “HOLD” (SERVICE position).
3) Turn on the power with the ON/STANDBY switch of the unit.

If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Fig. 5-2-1.

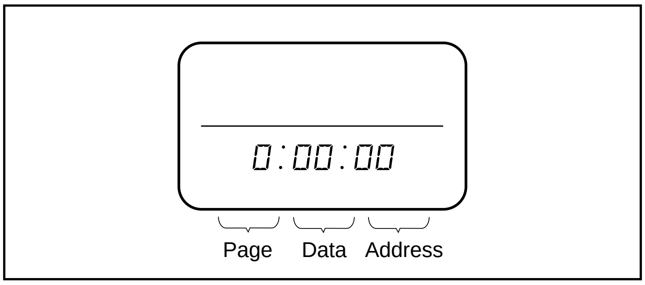


Fig. 5-2-1

4) Operate the adjusting remote commander as follows.
   - Changing the page
     The page increases when the EDIT SEARCH + button is pressed, and decreases when the EDIT SEARCH – button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0 1 2 3 4 5 6 7 8 9 A B C D E F
LCD Display	0 1 2 3 4 5 6 7 8 9 A b c d E F
Decimal notation conversion value	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Table 5-2-1

   - Changing the address
     The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data (C page, D page and E page) in the nonvolatile memory. (The new adjustment data will not be recorded in the non-volatile memory if this step is not performed.)

2. Precautions Upon Using the Adjusting Remote Commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

5-2-2. DATA PROCESSING

The calculation of the adjusting remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Table 5-2-2 indicates the hexadecimal notation- the decimal notation, calculation table.

Hexadecimal nontation-Decimal notation

The lower digits of the hexadecimal notation / The upper digits of the hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	②↓ D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
①→ B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note : ( ) indicate the adjusting remote control unit display.

(Example) In the case that the adjusting remote control unit display are BD (bd).
As the upper digit of the hexadecimal notation is B (b), and the lower digit is D (d), the intersection "189" of the ① and ② in the above table is the decimal notation to be calculated.

Table 5-2-2

5-2-3. SERVICE MODE

1. Emergence Memory Address

Page C	Address 38 to 43

Address	Contents
38	EMG code when first error occurs
3A	Upper: MSW code when shift starts when first error occurs Lower: MSW code when first error occurs
3B	Lower: MSW code to be moved when first error occurs
3C	EMG code when second error occurs
3E	Upper: MSW code when shift starts when second error occurs Lower: MSW code when second error occurs
3F	Lower: MSW code to be moved when second error occurs
40	EMG code when last error occurs
42	Upper: MSW code when shift starts when last error occurs Lower: MSW code when last error occurs
43	Lower: MSW code to be moved when last error occurs

When no error occurs in this unit, data “00” is written in the above addresses (38 to 43). when first error occurs in the unit, the data corresponding to the error is written in the first emergency address (38 to 3B). In the same way, when the second error occurs, the data corresponding to the error is written in the second emergency address (3C to 3F).
Finally, when the last error occurs, the data corresponding to the error is written in the last emergency address (40 to 43).

Note: After completing adjustments, be sure to initialize the data of addresses 38 to 43 to “00”.

Initializing method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: C, address: 38, set data: 00, and press the PAUSE button.
3) Select address: 39 to 43 and set data “00” into them in the same way as in address: 38.
4) Select page: 0, address: 01, and set data: 00.

2. EMG Code (Emergency Code)

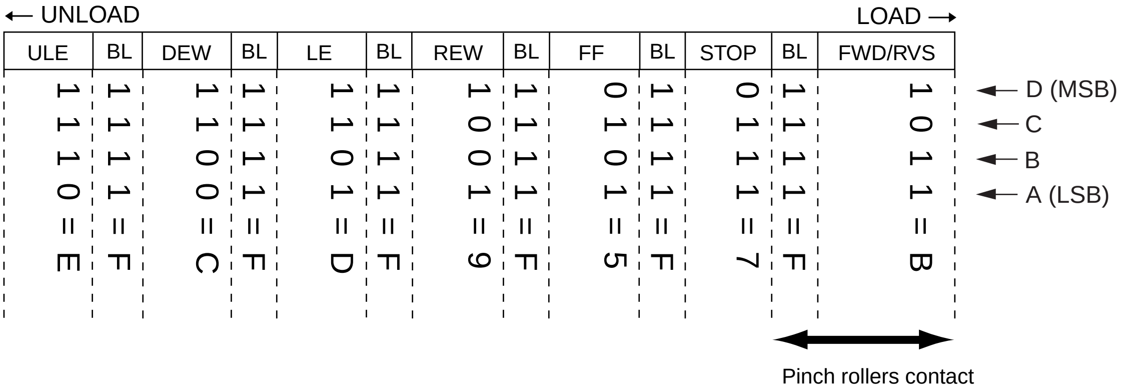
Codes corresponding to the errors which occur are written in addresses 38, 3C, 3E. The type of error indicated by the code are shown in the following table.

Code	Error Type
00	No error (Initial state)
10	Loading motor time-out during LOAD
11	Loading motor time-out during UNLOAD
20	Error during tape take up
22	T reel error
23	S reel error
25	Reel motor error
30	Error during normal capstan rotation
40	FG error during drum start-up
42	FG error during normal drum rotation
50	DEW detection
52	Wet DEW detection
70	Cassette compartment LOAD error
71	Cassette compartment UNLOAD error
72	Retry error because something is caught

3. MSW Code

MSW when an alarm occurred:	MSW (Mode Switch) information when an alarm occurred.
MSW when a transition starts:	MSW information when the mechanism position starts to move (if L motor runs).
MSW of target destination:	MSW information of target position if the mechanism position moves.

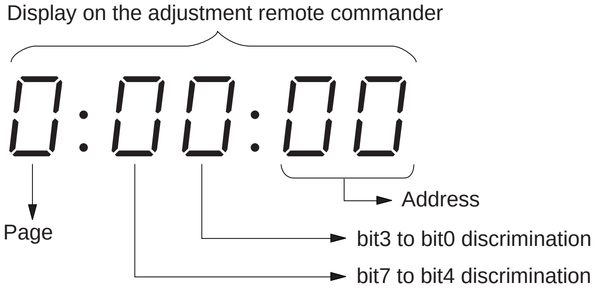
Mechanism position


← UNLOAD
LOAD →
ULE
BL
DEW
BL
LE
BL
REW
BL
FF
BL
STOP
BL
FWD/RVS
1110 = E
1111 = F
1100 = C
1111 = F
1101 = D
1111 = F
1001 = 9
1111 = F
0101 = 5
1111 = F
0111 = 7
1111 = F
1011 = B
D (MSB)
C
B
A (LSB)
Pinch rollers contact

Mechanism position	MSW code	Description
ULE	E	Unload end position. The mechanism stops at this position when it ejects a cassette. It waits for cassette insertion. The guide starts to expand as it advances to the load position.
BL	F	Blank code. It is provided between code and code. The mechanism does not stop at this code (excluding Load/Unload).
DEW	C	Code during loading.
LE	D	Load end position of tape guide.
REW	9	Position of REW operation. The pinch rollers are released.
FF	5	Position of FF operation. The pinch rollers are released.
STOP	7	Stop position. The pinch rollers are released, the tension regulator returns, and the brake is applied to both reels.
FWD/RVS	B	PB, REC, CUE, REVIEW, and PAUSE positions. The mechanism operates at this position in the mode where normal screen appears with the pinch rollers in contact state and the tension regulator turned on.
NULL	0	Code not existing in MD. Default value.

4. Bit Value Discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for the following items. Us the table below to discriminate if the bit value is “1” or “0”.


Display on the adjustment remote commander
0:00:00
Address
Page
bit3 to bit0 discrimination
bit7 to bit4 discrimination

(Example) If the remote commander display is “8E”, bit value from bit 7 to bit 4 can be discriminated from the column Ⓐ, and those from bit 3 to bit 0 from column Ⓑ.

	Display on the adjustment remote commander	Bit values			
		bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ	8	1	0	0	0
	9	1	0	0	1
	A (A)	1	0	1	0
	B (b)	1	0	1	1
	C (C)	1	1	0	0
	D (d)	1	1	0	1
Ⓑ	E (E)	1	1	1	0
	F (F)	1	1	1	1

5. Record of Use Check

Page E	Address D0 to E3

Address	Function		Remark
D0	OPRATION 1	Lower two digits	The cumulative total hours of operating time is displayed.
D1		Higher two digits	
D2	DRUM RUN 1	Lower two digits	The cumulative total hours of drum rotation with tape threaded is displayed.
D3		Higher two digits	
D4	TAPE RUN 1	Lower two digits	The cumulative total hours of tape running time is displayed.
D5		Higher two digits	
D6	THREADING 1	Lower two digits	The cumulative number of tape unthreading operations is displayed.
D7		Higher two digits	
D8	CHECK SUM 1	Lower two digits	
D9		Higher two digits	
DA	OPRATION 2	Lower two digits	The cumulative total hours of operating time is displayed.
DB		Higher two digits	
DC	DRUM RUN 2	Lower two digits	The cumulative total hours of drum rotation with tape threaded is displayed.
DD		Higher two digits	
DE	TAPE RUN 2	Lower two digits	The cumulative total hours of tape running time is displayed.
DF		Higher two digits	
E0	THREADING 2	Lower two digits	The cumulative number of tape unthreading operations is displayed.
E1		Higher two digits	
E2	CHECK SUM 2	Lower two digits	
E3		Higher two digits	

Using method:

1) The record of use data is displayed at page: E, addresses: D0 to E3.

Note: When the drum was replaced, initialize the drum rotation counted time.

Initializing method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: D0, set data: 00, and press the PAUSE button.
3) Select address: D1 to E3 and set data “00” into them in the same way as in address: D0.
4) Select page: 0, address: 01, and set data: 00.

6. LED Check

(1) All lit check

Page 9	Address 05, 4E

Using method:

1) Select page: 9, address: 05, and set data: 20.
2) Select page: 9, address: 4E, and set data: FF.
3) Check that all LEDs light up in the following colors respectively.

LED	Color
POWER, PLAY	Green
REC, 7 Segment LED	Red
Others	Amber

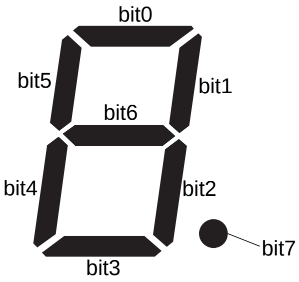
4) Select page: 9, address: 4E, and set data: 00.
5) Select page: 9, address: 05, and set data: 00.

(2) 7 Segment LED Check

Page 9	Address 05, 4E

Using method:

1) Select page: 9, address: 05, and set data: 20.
2) Select page: 9, address: 4E, and set each bit to “1”, and then check that the segments associated with respective bits light up.



3) Select page: 9, address: 4E, and set data: 00.
4) Select page: 9, address: 05, and set data: 00.

7. SWITCH CHECK (1)

Page 9	Address E0

Bit	Function	When bit value = 0	When bit value = 1
0	STOP (FR-183 board S408)	OFF	ON
1	REW (FR-183 board S404)	OFF	ON
2	PLAY (FR-183 board S405)	OFF	ON
3	REC (FR-183 board S407)	OFF	ON
4	PAUSE (FR-183 board S409)	OFF	ON
5	FF (FR-183 board S406)	OFF	ON
6	END SERCH (FR-183 board S412)	OFF	ON
7	RESET (COUNTER) (FR-183 board S414)	OFF	ON

Using method:
1) Select page: 9, address: E0.
2) By discriminating the bit value of display data, the pressed key can be discriminated.

8. SWITCH CHECK (2)

Page 9	Address E1

Bit	Function	When bit value = 0	When bit value = 1
0	AUDIO DUB (FR-183 board S410)	OFF	ON
1	INDEX (FR-183 board S413)	OFF	ON
2	DUP (FR-183 board S411)	OFF	ON
3	FINE (FR-183 board S417)	OFF	ON
4	UP (FR-183 board S415)	OFF	ON
5	DOWN (FR-183 board S416)	OFF	ON
6			
7			

Using method:
1) Select page: 9, address: E1.
2) By discriminating the bit value of display data, the pressed key can be discriminated.

9. SWITCH CHECK (3)

Page 9	Address E2

Bit	Function	Bit value		
0	AUDIO INPUT (FR-183 board S422)	When bit value = 0 MANU	When bit value = 1 AUTO	
1, 2	COUNTER SELECT (FR-183 board S418)	When bit value = 0, 0 TC	When bit value = 1, 0 COUNTER	When bit value = 0, 1 U-BIT
3, 4	AUDIO MONITOR (FR-183 board S419)	When bit value = 0, 0 MIX	When bit value = 1, 0 CH1/2	When bit value = 0, 1 CH3/4
5	CHARACTER DISPLAY (MONITOR OUT) (FR-183 board S423)	When bit value = 0 OFF	When bit value = 1 ON	
6, 7	CHARACTER DISPLAY (LCD) (FR-183 board S421)	When bit value = 0, 0 ON	When bit value = 1, 0 OFF	When bit value = 0, 1 BLACK BACK

Using method:
1) Select page: 9, address: E2.
2) By discriminating the bit value of display data, the state of the switches can be discriminated.

10. SWITCH CHECK (4)

Page 9	Address E3

Bit	Function	Bit value		
0, 1	DISPLAY SELECT (FR-183 board S420)	When bit value = 0, 0 DATA	When bit value = 1, 0 MENU	When bit value = 0, 1 AUDIO
2	REMOTE/LOCAL (FR-183 board S425)	When bit value = 0 LOCAL	When bit value = 1 REMOTE	
3, 4	TIMER (FR-183 board S424)	When bit value = 0, 0 OFF	When bit value = 1, 0 REPEAT	When bit value = 0, 1 REC
5	EXEC (FR-183 board S417)	When bit value = 0 OFF	When bit value = 1 ON	
6				
7				

Using method:

1) Select page: 9, address: E3.
2) By discriminating the bit value of display data, the state of the switches can be discriminated.

11. SWITCH CHECK (5)

Page 9	Address E4

Bit	Function	When bit value = 0	When bit value = 1
0	INPUT SELECT (FR-183 board S427)		DV
1			VIDEO
2			S VIDEO
3			COMPONENT

Using method:

1) Select page: 9, address: E4.
2) By discriminating the bit value of display data, the state of the switch can be discriminated.

5-3. VIDEO SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts on page 5-99.

3-1. PREPARATIONS BEFORE ADJUSTMENT

3-1-1. Equipment Used

1) TV monitor
2) Oscilloscope with 2-phenomenon, 30 MHz band, and delay mode (Unless specified otherwise, use a 10 : 1 probe)
3) Frequency counter
4) Digital voltmeter
5) Audio level meter
6) Audio noise meter
7) Audio attenuator
8) Audio distortion meter
9) Pattern generator (with VIDEO OUTPUT terminal and external sync function)
10) Pattern generator (with COMPONENT OUTPUT terminal)
11) Vectorscope (with SCH function)
    (NTSC: with SETUP function)
12) Alignment tape
    - SW/OL reference (XH2-3)
      Parts code: 8-967-997-11
    - Audio operation check for NTSC (XH5-3)
      Parts code: 8-967-997-51
    - System operation check for NTSC (XH5-5)
      Parts code: 8-967-997-61
    - Audio operation check for PAL (XH5-3P)
      Parts code: 8-967-997-55
    - System operation check for PAL (XH5-5P)
      Parts code: 8-967-997-66
13) Adjusting remote control unit (J-6082-053-B)
14) Extension board
    - For extension between CN8001 of the JC-21 board and CN9500 of the DI-73 board. (120P, 0.5 mm) (J-6082-511-A)
15) Time code generator (NTSC : BVG-1600/
    PAL : BVG-1600P etc.)
16) Time code reader (BVG-1500 etc.)

NTSC : DSR-45
PAL : DSR-45P

3-1-2. Connection of Equipment

According to the specification for the input terminal (COMPONENT input, S VIDEO input, VIDEO input, or DV input), connect measuring equipment as shown in Fig. 5-3-1, and make adjustment.
The input terminal is specified in ( ) of the signal column.
Any input terminal can be used unless otherwise specified.
To switch between COMPONENT input, S VIDEO input, VIDEO input and DV input, use the INPUT SELECT switch.

Note 1: In adjustments specifying for the S VIDEO input to be used, using the VIDEO input would disable the product specifications of this unit from being satisfied. Always use the input signal specified.

Note 2: If adjustments are used with the VTR with the S video output terminal as the signal source, the performance of this unit may be affected by the VTR. Use a pattern generator with a Y/C separator terminal as much as possible.

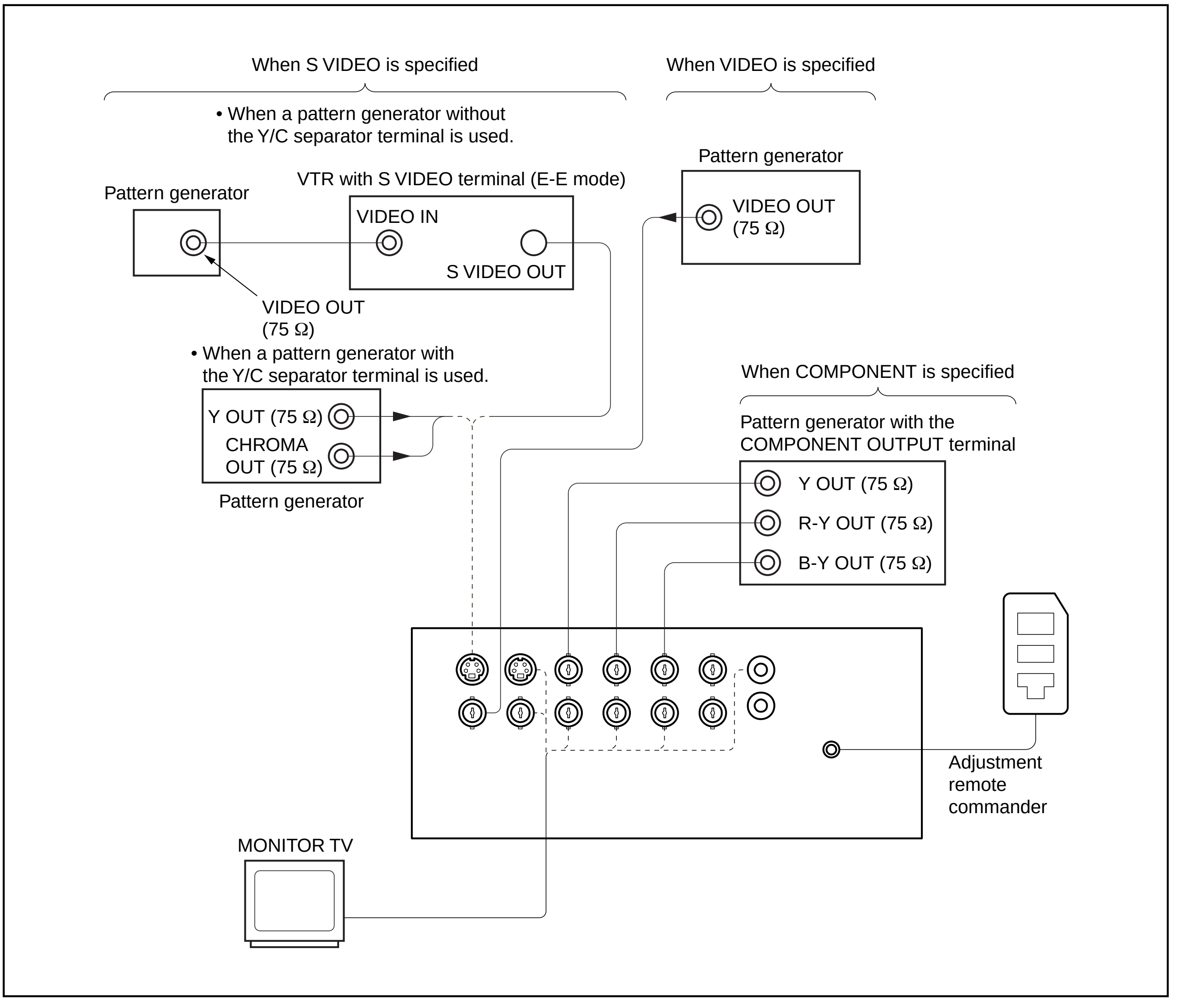

When S VIDEO is specified
• When a pattern generator without the Y/C separator terminal is used.
Pattern generator
VTR with S VIDEO terminal (E-E mode)
VIDEO IN
S VIDEO OUT
VIDEO OUT (75 Ω)
• When a pattern generator with the Y/C separator terminal is used.
Y OUT (75 Ω)
CHROMA OUT (75 Ω)
Pattern generator
When VIDEO is specified
Pattern generator
VIDEO OUT (75 Ω)
When COMPONENT is specified
Pattern generator with the COMPONENT OUTPUT terminal
Y OUT (75 Ω)
R-Y OUT (75 Ω)
B-Y OUT (75 Ω)
Adjustment remote commander
MONITOR TV

Fig. 5-3-1

3-1-3. Checking the Input Signals

Because the video signal obtained from the pattern generator is used as the adjustment signal for adjustments, the video output signal must satisfy the given specifications.

1. S VIDEO Input

Connect the oscilloscope to the Y signal terminal of the S VIDEO IN terminal, and check that the sync signal of the Y signal is approximately <0.286> [0.30] V and that the amplitude of the video section is approximately <0.714> [0.70] V. (When a VTR with the S VIDEO output terminal is used, also check that the chroma signal and burst signal have not remained)

Connect the oscilloscope to the chroma signal terminal of the S VIDEO IN terminal, and check that the burst signal amplitude of the chroma signal is approximately <0.286> [0.30] V and flat, and that the red signal amplitude of the chroma signal is approximately <0.67> [0.66] V. The Y and chroma signals used in the adjustment are shown in Fig. 5-3-2.

< >: NTSC model
[ ]: PAL model

2. VIDEO Input

Connect the oscilloscope to the VIDEO IN terminal, and check that the sync signal amplitude of the video signal is approximately <0.286> [0.30] V, the amplitude of the video section is approximately <0.714> [0.70] V, the amplitude of the burst signal is approximately <0.286> [0.30] V and flat, and that the red signal amplitude of the chroma signal is approximately <0.67> [0.66] V. The video signal (color bar) used for adjustments is shown in Fig. 5-3-3.

< >: NTSC model
[ ]: PAL model

NTSC: DSR-45
PAL : DSR-45P

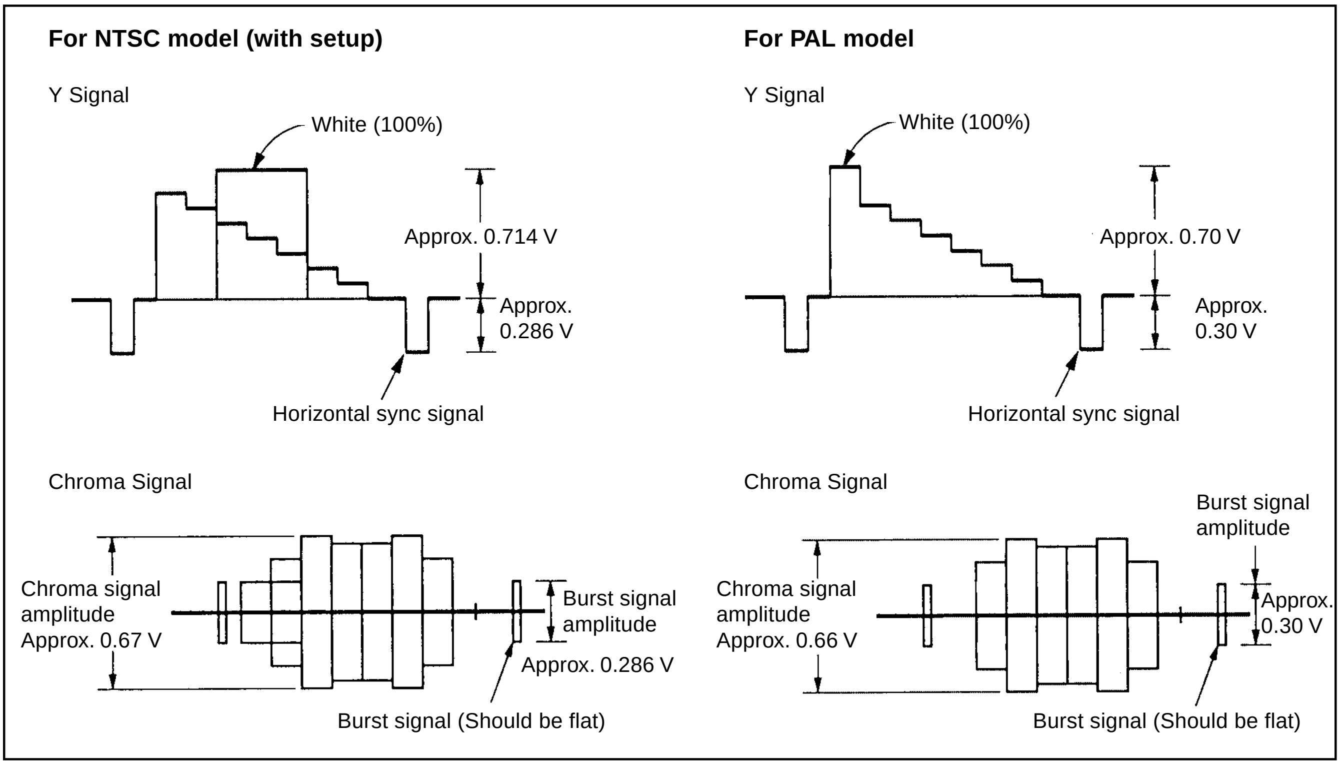

For NTSC model (with setup)
Y Signal
White (100%)
Approx. 0.714 V
Approx. 0.286 V
Horizontal sync signal
Chroma Signal
Chroma signal amplitude Approx. 0.67 V
Burst signal amplitude
Approx. 0.286 V
Burst signal (Should be flat)
For PAL model
Y Signal
White (100%)
Approx. 0.70 V
Approx. 0.30 V
Horizontal sync signal
Chroma Signal
Burst signal amplitude
Chroma signal amplitude Approx. 0.66 V
Approx. 0.30 V
Burst signal (Should be flat)

Fig. 5-3-2 Color Bar Signal of Pattern Generator

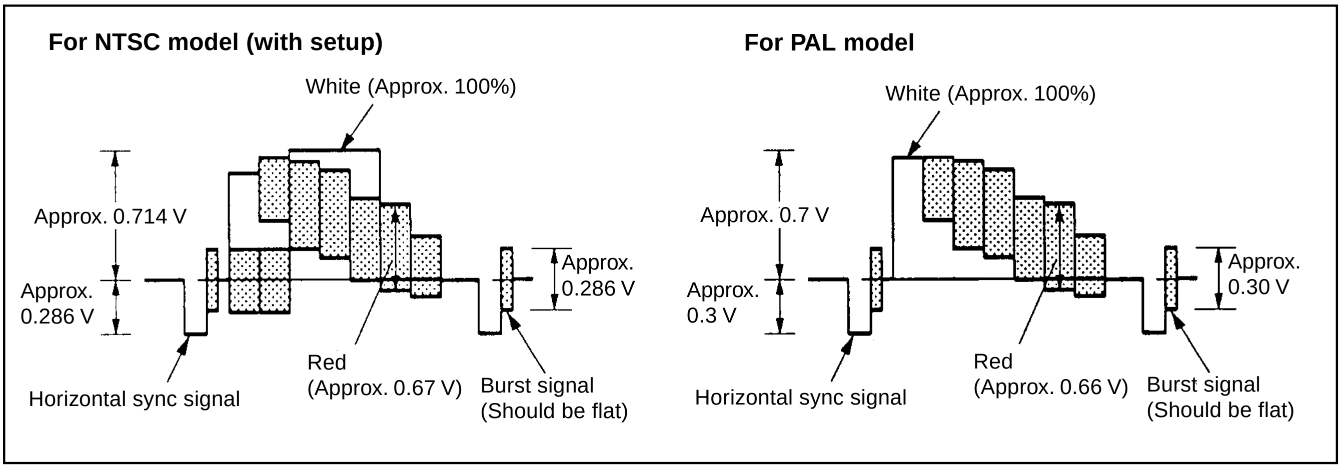

For NTSC model (with setup)
White (Approx. 100%)
Approx. 0.714 V
Approx. 0.286 V
Approx. 0.286 V
Horizontal sync signal
Red (Approx. 0.67 V)
Burst signal (Should be flat)
For PAL model
White (Approx. 100%)
Approx. 0.7 V
Approx. 0.3 V
Approx. 0.30 V
Horizontal sync signal
Red (Approx. 0.66 V)
Burst signal (Should be flat)

Fig. 5-3-3 Color Bar Signal of Pattern Generator

3. COMPONENT Input

Connect the oscilloscope to the Y signal terminal of the COMPONENT IN terminal, and check that the sync signal of the Y signal is approximately <0.286> [0.30] V and that the amplitude of the video section is approximately <0.714> [0.70] V. Connect the oscilloscope to the R-Y signal terminal of the COMPONENT IN terminal, and check that the R-Y signal amplitude is approximately <0.700> [0.525] V. Connect the oscilloscope to the B-Y signal terminal of the COMPONENT IN terminal, and check that the B-Y signal amplitude is approximately <0.700> [0.525] V. The Y, R-Y and B-Y signals used in the adjustment are shown in Fig. 5-3-4.

< >: NTSC model
[ ]: PAL model

NTSC : DSR-45
PAL : DSR-45P

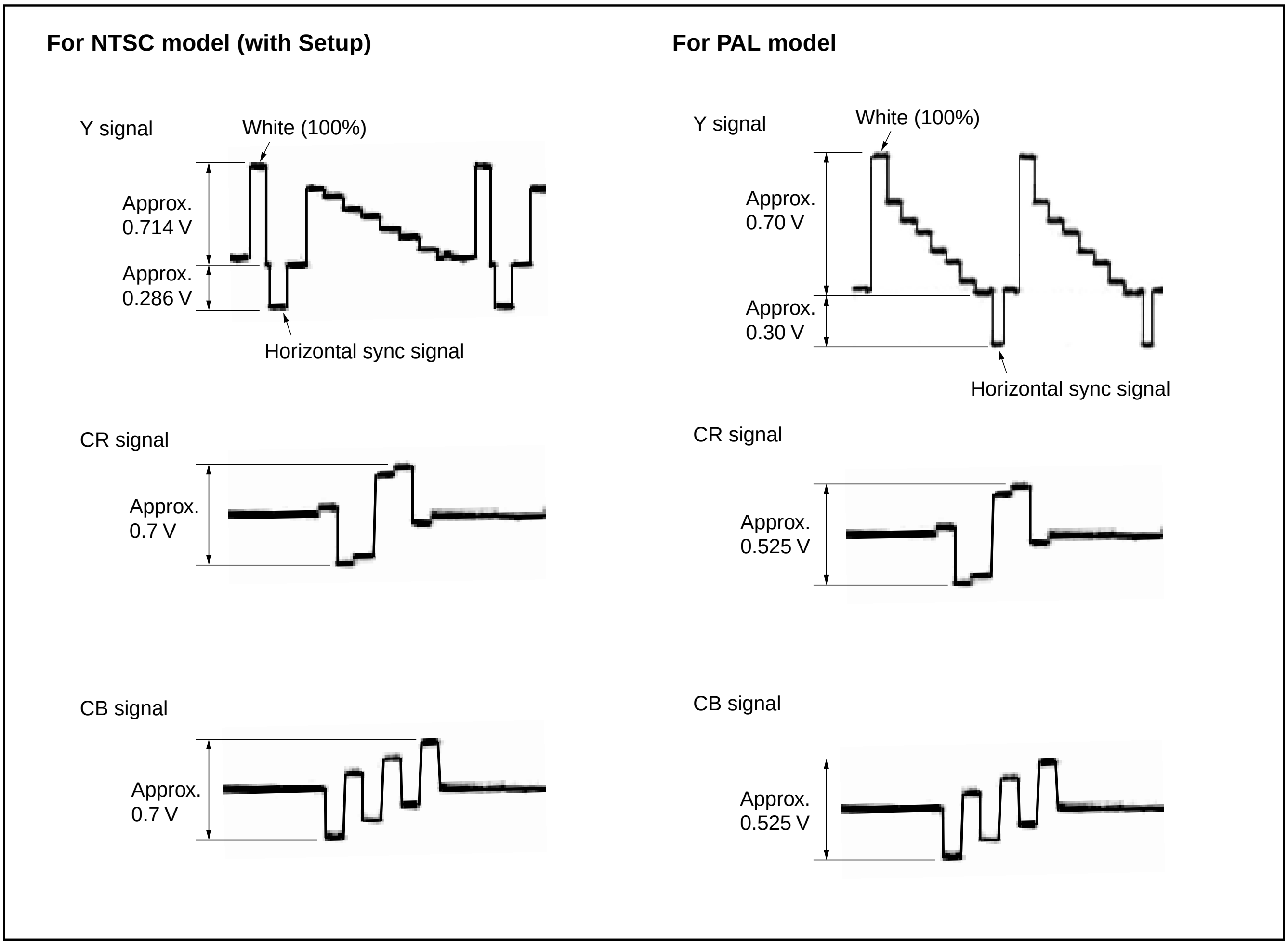


Fig. 5-3-4

3-1-4. Adjustment Tapes

Use the alignment tapes shown in the following table.
Use tapes specified in the signal column of each adjustment.

Name	Use
SW/OL standard (XH2-3)	Switching position adjustment
Audio operation check (XH5-3 (NTSC), XH5-3P (PAL))	Audio system adjustment
System operation check (XH5-5 (NTSC), XH5-5P (PAL))	Operation check

Table 5-3-1

Fig. 5-3-5 shows the color bar signals recorded on the alignment tape for Audio Operation Check.

Note: Measure with video terminal (Terminated at 75 Ω)

NTSC: DSR-45
PAL : DSR-45P

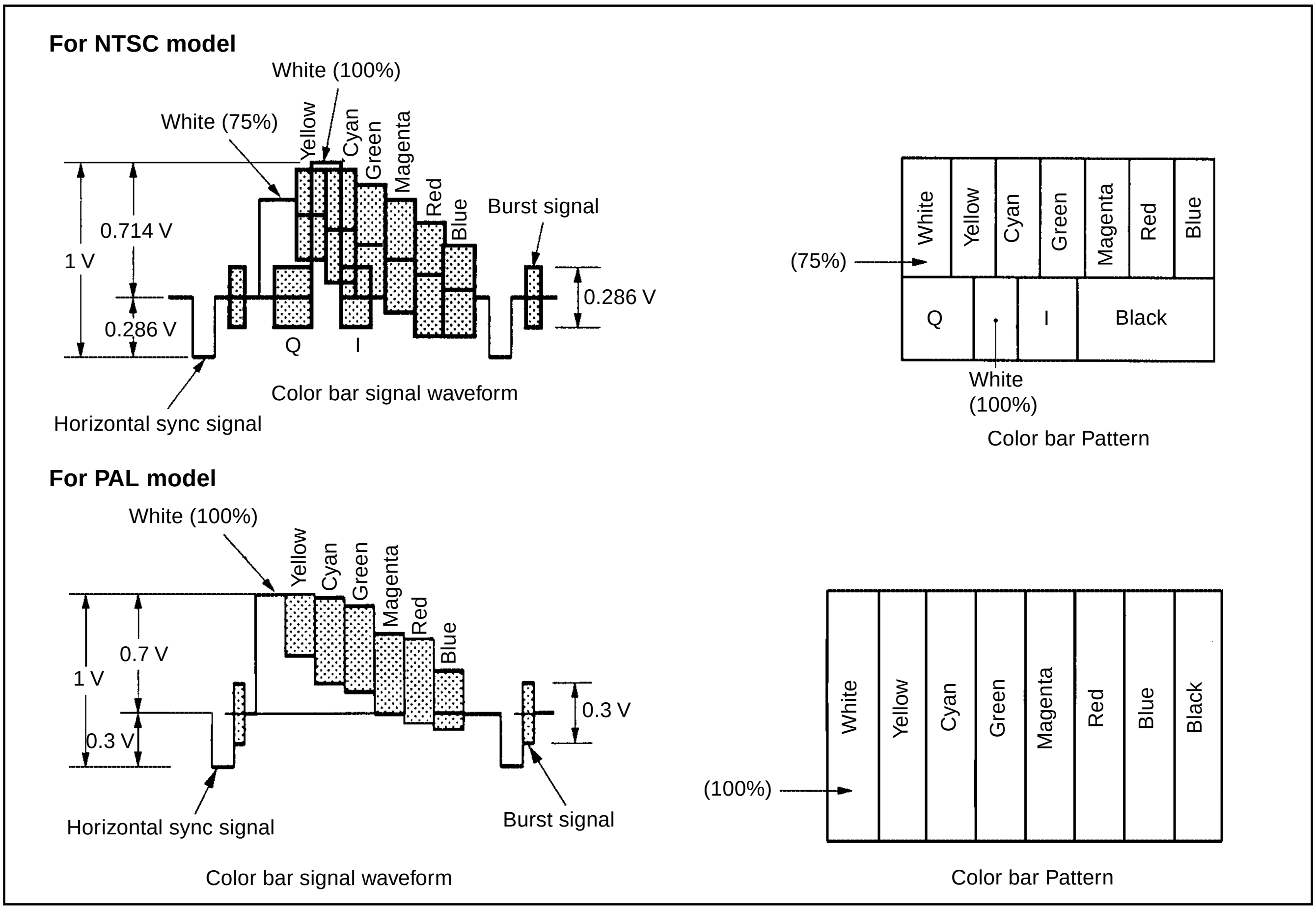

For NTSC model
White (100%)
White (75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst signal
0.714 V
1 V
0.286 V
0.286 V
Q
I
Color bar signal waveform
Horizontal sync signal
White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
Q
I
Black
White (100%)
Color bar Pattern
For PAL model
White (100%)
Yellow
Cyan
Green
Magenta
Red
Blue
0.7 V
1 V
0.3 V
0.3 V
Horizontal sync signal
Burst signal
Color bar signal waveform
White
Yellow
Cyan
Green
Magenta
Red
Blue
Black
(100%)
Color bar Pattern

Fig. 5-3-5 *Color Bar Signal of Alignment Tapes*

3-1-5. Input/output Level and Impedance

Inputs

VIDEO IN REF.IN	BNC type 1 Vp-p (75 ohms, unbalanced)
S VIDEO IN	Mini DIN 4-pin Luminance signal: 1 Vp-p (75 ohms, unbalanced) Chrominance signal: 0.286 Vp-p (DSR-45) 0.3 Vp-p (DSR-45P) (75 ohms unbalanced)
COMPONENT IN	Y: BNC type 1.0 Vp-p (75 ohms, unbalanced) R-Y: BNC type 0.7 Vp-p (75 ohms, unbalanced) (DSR-45: 75%, color bars / DSR-45P: 100%, colour bars) B-Y: BNC type 0.7 Vp-p (75 ohms, unbalanced) (DSR-45: 75%, color bars / DSR-45P: 100%, colour bars)
DV IN/OUT	4-pin jack (i.LINK)
AUDIO IN (CH-1 to CH-4)	Phono jack, –10/–2/+4 dBu, Impedance more than 47 kohms, unbalanced Maximum input level: DSR-45: –10 : +18 dBu (about 6 Vrms) –2 : +24 dBu (about 12.5 Vrms) +4 : +30 dBu (about 25 Vrms) DSR-45P: –10 : +16 dBu (about 5 Vrms) –2 : +22 dBu (about 10 Vrms) +4 : +28 dBu (about 20 Vrms)
TC IN	BNC type 0.5 to 18 Vp-p (time code input) 0.5 to 4 Vp-p (through output)

Outputs

MONITOR VIDEO	Phono jack, 1 Vp-p (75 ohms, unbalanced) (superimpose)
VIDEO OUT	BNC type, 1 Vp-p (75 ohms, unbalanced)
COMPONENT OUT	Y: BNC type 1.0 Vp-p (75 ohms, unbalanced) R-Y: BNC type 0.7 Vp-p (75 ohms, unbalanced) (DSR-45: 75%, color bars / DSR-45P: 100%, colour bars) B-Y: BNC type 0.7 Vp-p (75 ohms, unbalanced) (DSR-45: 75%, color bars / DSR-45P: 100%, colour bars)
S VIDEO OUT	Mini DIN 4-pin Luminance signal: 1.0 Vp-p (75 ohms, unbalanced) Chrominance signal: 0.286 Vp-p (DSR-45) 0.3 Vp-p (DSR-45P) (75 ohms, unbalanced)
AUDIO OUT (CH-1 to CH-4)	XLR 3-pin, male, +4 dBu, 600 ohms loading, balanced
MONITOR AUDIO	Phono jack
TC OUT	BNC type, 2.2 Vp-p, 600 ohms / 1.2 Vp-p, 75 ohms 0.5 to 4 Vp-p (through output, 600 ohms)
PHONES	Stereo minijack, 8 Ω

3-2. SYSTEM CONTROL SYSTEM ADJUSTMENTS

1. Initializing the C, D, E Page Data

Note 1: If "Initializing the C, D, E Page Data" is performed, all data of the C page, D page and E page will be initialized.

Note 2: If the C, D, E page data has been initialized, "Modification of C, D, E page Data" and all adjustments need to be performed again.

Mode	E-E
Signal	Arbitrary
Adjustment Page	C
Adjustment Address	00 to DF
Adjustment Page	D
Adjustment Address	10 to 3F
Adjustment Page	E
Adjustment Address	10 to ED

2. Input of C Page Initial Data

Input method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 80, set data: 0C, and press the PAUSE button on the adjustment remote commander.
3) Select page: 3, address: 80, and check that the data change to "1C".
4) Press the RESET switch at the bottom of the set using a thin and long pin.
5) Modify the C page data. (Refer to C page table)

3. Input of D Page Initial Data

Input method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 80, set data: 0D, and press the PAUSE button on the adjustment remote commander.
3) Select page: 3, address: 80, and check that the data change to "1D".
4) Press the RESET switch at the bottom of the set using a thin and long pin.
5) Modify the D page data. (Refer to D page table)

4. Input of E Page Initial Data

Note 1: Perform the operation after setting the DISPLAY SELECT switch on the front panel to any mode other than "MENU".

Note 2: When EEPROM (IC708 on VD-032 board) is replaced with a brand-new one, apply power with the following method before operation.

1) Connect the adjustment remote commander without connecting the cable to AC connector.
2) Set the HOLD switch on the adjustment (adjusting) remote commander to "HOLD" (service position).
3) Connect the cable to AC connector.

Input method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 9, address: 00, set data: 2D, and press the PAUSE button on the adjustment remote commander.
3) Select page: 9, address: 01, set data: 2D, and press the PAUSE button.
4) Select page: 9, address: 02, and check that the data change to "01".
5) Press the RESET switch at the bottom of the set using a thin and long pin.
6) Disconnect the adjustment remote commander, and turn the POWER switch OFF.
7) Disconnect the cable connected to AC connector once, then connect them again.
8) Turn the POWER switch ON.
9) Modify the E page data. (Refer to E page table)

5. Modification of C, D, E, Page Data

If the C, D, E page data has been initialized, change the data of the "Fixed data-2" address shown in the following tables by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.

Note : If copy the data built in the different model, this set may not operate.

3) When changing the data, press the PAUSE button of the adjusting remote commander each time when setting new data to write the data in the non-volatile memory.
4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.
5) After completing "Modification of C, D, E Page Data", select page: 0, address: 01, and set data: 00. Also perform all adjustments.

6. C Page Table

Note: Fixed data-1: Initialized data. (Refer to “Input of C page Initial Data”)
Fixed data-2: Modified data. (Refer to “Modified of C, D, E Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to 0F			Fixed data-1 (Initialized data)
10	EE	EE	Switching position adj.
11	00	00	
12	EE	EE	
13	00	00	
14, 15			Fixed data-1 (Initialized data)
16	E0	E0	Capstan FG adj.
17			Fixed data-1 (Initialized data)
18	2A	2A	CLK DELAY and AEQ adj.
19	2A	2A	
1A			Fixed data-1 (Initialized data)
1B	33	33	CLK DELAY and AEQ adj.
1C	33	33	
1D			Fixed data-1 (Initialized data)
1E	25	25	RF-AGC adj.
1F	3E	3E	PLL f_0 adj.
20	3E	3E	
21	DC	DC	CLK DELAY and AEQ adj.
22	99	99	PLL f_0 adj.
23, 24			Fixed data-1 (Initialized data)
25	88	88	Playback Y level adj./ Monitor terminal output Y level adj.
26	E3	E3	Playback C level adj./ Monitor terminal output C level adj.
27	A1	A1	Playback C level adj./ Monitor terminal output C level adj.
28 to 2B			Fixed data-1 (Initialized data)
2C	08	08	Node unique ID No. input
2D	00	00	
2E	46	46	
2F	01	01	
30	02	02	
31	00	00	
32	00	00	
33	00	00	
34			Fixed data-2
35			
36			
37			
38	00	00	Emergency memory
39	00	00	
3A	00	00	
3B	00	00	
3C	00	00	
3D	00	00	
3E	00	00	
3F	00	00	
40	00	00	
41	00	00	
42	00	00	
43	00	00	

Address	Initial value		Remark
	NTSC	PAL	
44 to 46			Fixed data-1 (Initialized data)
47	20	20	PLL f_0 adj.
48 to 63			Fixed data-1 (Initialized data)
64			Fixed data-2
65 to 72			Fixed data-1 (Initialized data)
73	03	03	CLK DELAY and AEQ adj.
74 to 8F			Fixed data-1 (Initialized data)
90			Fixed data-2
91 to A2			Fixed data-1 (Initialized data)
A3			Fixed data-2
A4 to A9			Fixed data-1 (Initialized data)
AA			Fixed data-2
AB to BD			Fixed data-1 (Initialized data)
BE			Fixed data-2
BF to C1			Fixed data-1 (Initialized data)
C2			Fixed data-2
C3 to DF			Fixed data-1 (Initialized data)

7. D Page Table

Note: Fixed data-1: Initialized data. (Refer to “Input of D page Initial Data”)
Fixed data-2: Modified data. (Refer to “Modified of C, D, E Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
10 to 12			Fixed data-1 (Initialized data)
13			Fixed data-2
14 to 36			Fixed data-1 (Initialized data)
37			Fixed data-2
38 to 3E			Fixed data-1 (Initialized data)
3F			Fixed data-2

8. E Page Table

Note: Fixed data-1: Initialized data. (Refer to “Input of E page Initial Data”)
Fixed data-2: Modified data. (Refer to “Modified of C, D, E Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
10 to 12			Fixed data-1 (Initialized data)
13			Fixed data-2
14 to 28			Fixed data-1 (Initialized data)
29			Fixed data-2
2A	08	08	H phase adj.
2B to 31			Fixed data-1 (Initialized data)
32			Fixed data-2
33			Fixed data-1 (Initialized data)
34			Fixed data-2
35 to 6D			Fixed data-1 (Initialized data)
6E			Fixed data-2
6F			
70 to 7F			Fixed data-1 (Initialized data)
80	9C	9C	Bright adj.
81	65	65	Color adj.
82	95	95	White barance adj.
83	5F	5F	
84	97	97	Contrast adj.
85	B7	B7	D range adj.
86	65	65	V-COM level adj.
87	9F	–	VCO adj. (NTSC) / Fixed data-1 (PAL)
88	7A	7A	V-COM adj.
89 to 8B			Fixed data-1
8C	–	9F	Fixed data-1 (NTSC) / VCO adj. (PAL)
8D to 8F			Fixed data-1 (Initialized data)
90	9F	9F	Composite E-E Y signal level adj.
91	–	AA	Fixed data-1 (Initialized data) (NTSC)/ Decoder free run adj. (PAL)
92			Fixed data-1 (Initialized data)
93	5B	5B	Decoder HUE adj.
94	35	35	Component E-E Y signal level adj.
95	3B	3B	Component E-E CB signal level adj.
96	35	35	Component E-E CR signal level adj.
97			Fixed data-1 (Initialized data)
98	5D	5D	Component E-E CB signal delay adj.
99	70	70	Component E-E CR signal delay adj.
9A			Fixed data-1 (Initialized data)
9B	25	25	Playback CB signal delay adj.
9C	25	25	Playback CR signal delay adj.
9D	A9	A9	Playback sync level adj.
9E			Fixed data-1 (Initialized data)
9F	B4	B4	Burst level adj.
A0	–	62	Fixed data-1 (NTSC) / Burst level adj. (PAL)
A1	97	97	Color level adj. with 0% setup
A2	B2	B2	
A3	B2	B2	Carrier balance adj.
A4	8D	8D	
A5	99	99	Encoder free run adj.
A6			Fixed data-1 (Initialized data)

Address	Initial value		Remark
	NTSC	PAL	
A7	70	70	Playback SC phase adj. (EXT SYNC ON)
A8	32	32	SC_V phase adj.
A9	88	–	Decoder free run adj. (NTSC)/ Fixed data-1 (Initialized data) (PAL)
AA	BE	BE	Playback blanking level adj. with 0% Setup
AB			Fixed data-1 (Initialized data)
AC	5A	5A	Playback Y signal level adj. with 0% Setup
AD	8E	8E	Playback CB signal level adj. with 0% Setup
AE	A1	A1	Playback CR signal level adj. with 0% Setup
AF to B4			Fixed data-1 (Initialized data)
B5	30	30	S Video E-E CB signal delay adj.
B6	30	30	S Video E-E CR signal delay adj.
B7 to BC			Fixed data-1 (Initialized data)
BD	AD	AD	S video E-E Y signal level adj.
BE	C0	C0	S video E-E CB signal level adj.
BF	BA	BA	S video E-E CR signal level adj.
C0	93	–	Color level adj. with 7.5% setup (NTSC)/ Fixed data-1 (Initialized data) (PAL)
C1	AF	–	
C2	4D	–	Playback Y signal level adj. with 7.5% setup (NTSC)/ Fixed data-1 (Initialized data) (PAL)
C3	6E	–	Playback CB signal level adj. with 7.5% setup (NTSC)/ Fixed data-1 (Initialized data) (PAL)
C4	82	–	Playback CR signal level adj. with 7.5% setup (NTSC)/ Fixed data-1 (Initialized data) (PAL)
C5 to C7			Fixed data-1 (Initialized data)
C8	9C	–	Playback blanking level adj. with 7.5% Setup (NTSC)/ Fixed data-1 (Initialized data) (PAL)
C9	8D	8D	H phase adj.
CA	8F	8F	E-E color level adj.
CB	B4	B4	
CC	BD	BD	E-E blanking level adj.
CD			Fixed data-1 (Initialized data)
CE	61	61	E-E SC phase adj.
CF	42	42	Playback SC phase adj. (EXT SYNC OFF)
D0	00	00	Record of use
D1	00	00	
D2	00	00	
D3	00	00	
D4	00	00	
D5	00	00	
D6	00	00	
D7	00	00	
D8	00	00	
D9	00	00	
DA	00	00	
DB	00	00	

Address	Initial value		Remark
	NTSC	PAL	
DC	00	00	Record of use
DD	00	00	
DE	00	00	
DF	00	00	
E0	00	00	
E1	00	00	
E2	00	00	
E3	00	00	
E4			Fixed data-1 (Initialized data)
E5			Fixed data-2
E6			
E7 to EB			Fixed data-1 (Initialized data)
EC			Fixed data-2
ED			Fixed data-1 (Initialized data)

9. Node Unique ID No. Input

Note 1: Perform “9-2. Input of Serial No.” if the data on page C has been cleared and the node unique ID No. is not found.

9-1. Input of Company ID etc.

Write the company ID to the EEPROM (nonvolatile memory).

Page	C
Address	2C, 2D, 2E, 2F, 30, 31

Input method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: C, and enter the following data.

Note 2: Each time the data is set, press the PAUSE button on the adjusting remote commander.

Address	Data
2C	08
2D	00
2E	46
2F	01
30	02
31	5D
32	Refer to “Input of Serial No.”
33	

3) Select page: 0, address: 01, and set data: 00.

9-2. Input of Serial No.

Write the serial No. to the EEPROM (nonvolatile memory).
In writing the serial No., a decimal number should be converted into a hexadecimal number.

Page	C
Address	32, 33

1) Select page: 0, address: 01, and set data: 01.
2) Read the serial No. from the model name label, and it is assumed to be D_1.
   Example: If serial No. is “77881”,
   $D_1 = 77881$
3) From Table 5-3-2, obtain D_2 that correspond to D_1.
   Example: If $D_1 = 77881$,
   $D_2 = D_1 - 65536 = 12345$

D_1 (decimal)	D_2 (decimal)
00001 to 65535	D_1
65536 to 131071	$D_1 - 65536$
131072 to196607	$D_1 - 131072$

Table 5-3-2

4) From Table 5-3-3, obtain the maximum decimal number less than D_2, and it is assumed to be D_3.
   Example: If $D_2 = 12345$.
   $D_3 = 12288$
5) From Table 5-3-3, obtain a hexadecimal number that corresponds to D_3, and it is assumed to be H_3.
   Example: If $D_3 = 12288$,
   $H_3 = 3000$
6) Caluculate D_4 using following equations (decimal caluculation). ($0 \leqq D_4 \leqq 225$)
   $D_4 = D_2 - D_3$
   Example: If $D_2 = 12345$ and $D_3 = 12288$,
   $D_4 = 12345 - 12288 = 57$
7) Convert D_4 into a hexadecimal number to obtain H_4. (See Table 5-2-2 “Hexadecimal - decimal conversion table” in 5-2. Service Mode)
   Example: If $D_4 = 57$,
   $H_4 = 39$
8) Enter higher two digits of H_3 to address: 32 on page: C.
   Example: If $H_3 = 3000$,
   select page: C, address: 32, and set data: 30, then press the PAUSE button.
9) Enter H_4 to address: 33 on page: C.
   Example: If $H_4 = 39$,
   select page: C, address: 33, and set data: 39, then press the PAUSE button.
10) Select page: 0, address: 01, and set data: 00.

D_3	H_3	D_3	H_3	D_3	H_3	D_3	H_3	D_3	H_3	D_3	H_3	D_3	H_3	D_3	H_3
0	0000	8192	2000	16384	4000	24576	6000	32768	8000	40960	A000	49152	C000	57344	E000
256	0100	8448	2100	16640	4100	24832	6100	33024	8100	41216	A100	49408	C100	57600	E100
512	0200	8704	2200	16896	4200	25088	6200	33280	8200	41472	A200	49664	C200	57856	E200
768	0300	8960	2300	17152	4300	25344	6300	33536	8300	41728	A300	49920	C300	58112	E300
1024	0400	9216	2400	17408	4400	25600	6400	33792	8400	41984	A400	50176	C400	58368	E400
1280	0500	9472	2500	17664	4500	25856	6500	34048	8500	42240	A500	50432	C500	58624	E500
1536	0600	9728	2600	17920	4600	26112	6600	34304	8600	42496	A600	50688	C600	58880	E600
1792	0700	9984	2700	18176	4700	26368	6700	34560	8700	42752	A700	50944	C700	59136	E700
2048	0800	10240	2800	18432	4800	26624	6800	34816	8800	43008	A800	51200	C800	59392	E800
2304	0900	10496	2900	18688	4900	26880	6900	35072	8900	43264	A900	51456	C900	59648	E900
2560	0A00	10752	2A00	18944	4A00	27136	6A00	35328	8A00	43520	AA00	51712	CA00	59904	EA00
2816	0B00	11008	2B00	19200	4B00	27392	6B00	35584	8B00	43776	AB00	51968	CB00	60160	EB00
3072	0C00	11264	2C00	19456	4C00	27648	6C00	35840	8C00	44032	AC00	52224	CC00	60416	EC00
3328	0D00	11520	2D00	19712	4D00	27904	6D00	36096	8D00	44288	AD00	52480	CD00	60672	ED00
3584	0E00	11776	2E00	19968	4E00	28160	6E00	36352	8E00	44544	AE00	52736	CE00	60928	EE00
3840	0F00	12032	2F00	20224	4F00	28416	6F00	36608	8F00	44800	AF00	52992	CF00	61184	EF00
4096	1000	12288	3000	20480	5000	28672	7000	36864	9000	45056	B000	53248	D000	61440	F000
4352	1100	12544	3100	20736	5100	28928	7100	37120	9100	45312	B100	53504	D100	61696	F100
4608	1200	12800	3200	20992	5200	29184	7200	37376	9200	45568	B200	53760	D200	61952	F200
4864	1300	13056	3300	21248	5300	29440	7300	37632	9300	45824	B300	54016	D300	62208	F300
5120	1400	13312	3400	21504	5400	29696	7400	37888	9400	46080	B400	54272	D400	62464	F400
5376	1500	13568	3500	21760	5500	29952	7500	38144	9500	46336	B500	54528	D500	62720	F500
5632	1600	13824	3600	22016	5600	30208	7600	38400	9600	46592	B600	54784	D600	62976	F600
5888	1700	14080	3700	22272	5700	30464	7700	38656	9700	46848	B700	55040	D700	63232	F700
6144	1800	14336	3800	22528	5800	30720	7800	38912	9800	47104	B800	55296	D800	63488	F800
6400	1900	14592	3900	22784	5900	30976	7900	39168	9900	47360	B900	55552	D900	63744	F900
6656	1A00	14848	3A00	23040	5A00	31232	7A00	39424	9A00	47616	BA00	55808	DA00	64000	FA00
6912	1B00	15104	3B00	23296	5B00	31488	7B00	39680	9B00	47872	BB00	56064	DB00	64256	FB00
7168	1C00	15360	3C00	23552	5C00	31744	7C00	39936	9C00	48128	BC00	56320	DC00	64512	FC00
7424	1D00	15616	3D00	23808	5D00	32000	7D00	40192	9D00	48384	BD00	56576	DD00	64768	FD00
7680	1E00	15872	3E00	24064	5E00	32256	7E00	40448	9E00	48640	BE00	56832	DE00	65024	FE00
7936	1F00	16128	3F00	24320	5F00	32512	7F00	40704	9F00	48896	BF00	57088	DF00	65280	FF00

Note: D_3: Decimal
H_3: Hexadecimal

Table 5-3-3

3-3. SERVO AND RF SYSTEM ADJUSTMENTS

1. Capstan FG Adjustment (CM-59 Board)

RadarW

Mode	E-E
Signal	No signal
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	16
Specified Value	“ 00 ”

Adjusting method:

1) Close the cassette compartment without tape.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: 3, address: 01, set data: 1B, and press the PAUSE button of adjustment remote commander.
4) Select page: 3, address: 02 , and check that the data change to “ 1B ” → “ 2B ” → “ 00 ”.
5) Select page: 3, address: 03, and check data: “ 00 ”.
   Note: If page: 3, address: 03 is “ 01 ”, there are errors.
6) Set page: 0, address: 01, and set data: 00.

2. PLL f_0 Pre-adjustment (RP-234 Board)

RadarW

Mode	E-E
Signal	No signal
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	1F, 20, 22, 47
Specified Value	“ 00 ”

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 01, set data: 30, and press the PAUSE button of the adjustment remote commander.
3) Select page: 3, address: 02, and check that the data changes to “ 00 ”.
4) Select page: 3, address: 03, and check that the data is “ 00 ”.
5) Select page: 0, address: 01, and set data: 00.

3. Switching Position Adjustment (RP-234 Board)

RadarW

Mode	Playback
Signal	Alignment tape: SW/OL standard (XH2-3)
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	10, 11, 12, 13
Specified Value	“ 00 ”

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 01, set data: 0D, and press the PAUSE button of the adjustment remote commander.
3) Select page: 3, address: 02, and check that the data changes to “ 00 ”.
4) Select page: 3, address: 03, and check that the data is “ 00 ”.
5) Select page: 0, address: 01, and set data: 00.

4. RF-AGC Adjustment (RP-234 Board)

RadarW

Mode	Recording and playback
Signal	Color bar
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	1E
Specified Value	“ 00 ”

Adjusting method:

1) Record the color bar signal in the optional tape about 2 minutes.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: C, address: 54, set data: CC, and press the PAUSE button of the adjustment remote commander.
4) Select page: 3, address: 1D, set data: 21, and press the PAUSE button.
5) Play back the recorded section.
6) Select page: 3, address: 01, set data: 23, and press the PAUSE button.
7) Select page: 3, address: 02, and check that the data changes to “ 00 ”.
8) Select page: 3, address: 03, and check that the data is “ 00 ”.
9) Select page: 3, address: 1D, set data: 20, and press the PAUSE button.
10) Select page: C, address: 54, set data: 00, and press the PAUSE button.
11) Select page: 0, address: 01, and set data: 00.

5. CLK DELAY and AEQ Adjustment (RP-234 Board)

RadarW

Mode	Recording and playback
Signal	Color bar
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	18, 19, 1B, 1C, 21, 73
Specified Value	“ 00 ”

Adjusting method:

1) Record the color bar signal in the optional tape about 2 minutes.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: C, address: 54, set data: CC, and press the PAUSE button of the adjustment remote commander.
4) Select page: 3, address: 1D, set data: 21, and press the PAUSE button.
5) Play back the recorded section.
6) Select page: 3, address: 01, set data: 07, and press the PAUSE button.
7) Select page: 3, address: 02, and check that the data changes to “ 00 ”.
8) Select page: 3, address: 03, and check that the data is “ 00 ”.
9) Select page: 3, address: 1D, set data: 20, and press the PAUSE button.
10) Select page: C, address: 54, set data: 00, and press the PAUSE button.
11) Select page: 0, address: 01, and set data: 00.

6. PLL f_0 Final Adjustment (RP-234 Board) RadarW

Mode	E-E
Signal	No signal
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	C
Adjustment Address	1F, 20, 22, 47
Specified Value	“ 00 ”

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 01, set data: 30, and press the PAUSE button of the adjustment remote commander.
3) Select page: 3, address: 02, and check that the data changes to “ 00 ”.
4) Select page: 3, address: 03, and check that the data is “ 00 ”.
5) Select page: 0, address: 01, and set data: 00.

3-4. VIDEO SYSTEM ADJUSTMENTS

3-4-1. JC-21 Board Adjustment

1. VFD SPCK Adjustment (JC-21 Board)

Mode	E-E
Signal	No signal
Measuring Point	Pin ⑤ of IC3302 (CL3305)
Measuring Instrument	Frequency counter
Adjustment Element	CT3300
Specified value	f = 13500000 ± 20 Hz

Adjusting method:

1) Set the VFD SPCK frequency (f) to the specified value using CT3300.

2. A/D Converter Reference Voltage Adjustment (1) (JC-21 Board)

Mode	E-E
Signal	Arbitrary
Measuring Point	Pin ⑤ of IC1105 (CL1170)
Measuring Instrument	Digital voltmeter
Adjustment Element	RV1100
Specified value	A = 2.83 ± 0.01 Vdc

Adjusting method:

1) Set the VRT voltage (A) to the specified value using RV1100.

3. A/D Converter Reference Voltage Adjustment (2) (JC-21 Board)

Mode	E-E
Signal	Arbitrary
Measuring Point	Pin ③ of IC1105 (CL1169)
Measuring Instrument	Digital voltmeter
Adjustment Element	RV1101
Specified value	A = 0.96 ± 0.01 Vdc

Adjusting method:

1) Set the VBT voltage (A) to the specified value using RV1101.

4. Y Signal Clamp Reference Voltage Adjustment (JC-21 Board)

Mode	E-E
Signal	Color bar
Measuring Point	Pin ⑧ of IC1102 (CL1161)
Measuring Instrument	Digital voltmeter
Adjustment Element	RV1103
Specified value	A = 1.150 ± 0.005 Vdc

Connection: Connect a jumper wire between Pin 6 of IC1101 (CL1145 or Q1116 collector) and GND.

Adjusting method:

1) Set the Y signal clamp reference voltage (A) to the specified value using RV1103.

5. CR Signal Clamp Reference Voltage Adjustment (JC-21 Board)

Mode	E-E
Signal	Color bar
Measuring Point	Pin ⑧ of IC1103 (CL1160)
Measuring Instrument	Digital voltmeter
Adjustment Element	RV1102
Specified value	A = 1.915 ± 0.005 Vdc

Connection: Connect a jumper wire between Pin 6 of IC1101 (CL1145 or Q1116 collector) and GND.

Adjusting method:

1) Set the CR signal clamp reference voltage (A) to the specified value using RV1102.

6. CB Signal Clamp Reference Voltage Adjustment (JC-21 Board)

Mode	E-E
Signal	Color bar
Measuring Point	Pin ⑧ of IC1104 (CL1162)
Measuring Instrument	Digital voltmeter
Adjustment Element	RV1104
Specified value	A = 1.915 ± 0.005 Vdc

Connection: Connect a jumper wire between Pin 6 of IC1101 (CL1145 or Q1116 collector) and GND.

Adjusting method:

1) Set the CB signal clamp reference voltage (A) to the specified value using RV1104.

7. AFC Preliminary Adjustment (JC-21 Board)

Mode	Recording
Signal	Color bar
Measuring Point	Pin ⑨ of IC2204 (CL2214)
Measuring Instrument	Digital voltmeter
Adjustment Element	CT2200
Specified value	A = 1.9 ± 0.5 Vdc

Adjusting method:

1) Set the DC voltage (A) to the specified value using CT2200.

8. AFC Picture Frame Adjustment (JC-21 Board)

Mode	Recording
Signal	Color bar
Measuring Point	CH1: Pin ㉑ of IC1108 (CL1157) CH2: Pin ㉘ of IC2204 (CL2217)
Measuring Instrument	Oscilloscope
Adjustment Element	RV2201
Specified value	T = 110 ± 10 nsec

Adjusting method:

1) Set the time difference (T) between the center of COMP SYNC falling and AFH rising to the specified vale using RV2201.

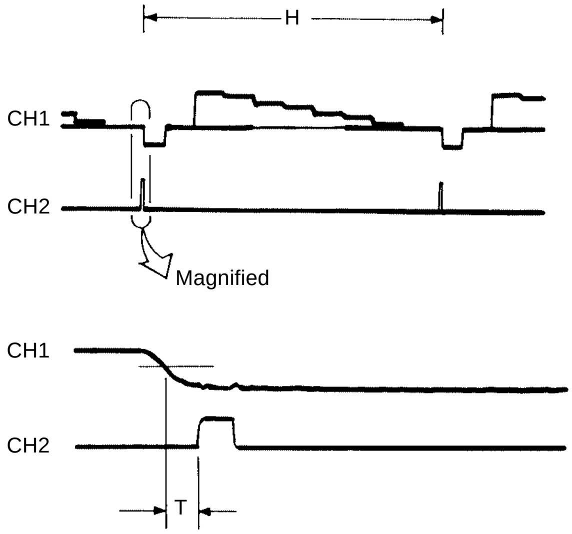


Fig. 5-3-6

9. AFC Adjustment (JC-21 Board)

Mode	Recording
Signal	Color bar
Measuring Point	Pin ⑨ of IC2204 (CL2214)
Measuring Instrument	Digital voltmeter
Adjustment Element	CT2200
Specified value	A = 1.90 ± 0.05 Vdc

Adjusting method:

1) Set the DC voltage (A) to the specified value using CT2200.

10. Playback Y level Adjustment (JC-21 Board)

Mode	E-E
Signal	No signal
Measuring Point	Pin ⑬ of CN1101 (CL1122)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	25
Specified value	Y level: A = 1.00 ± 0.01 Vp-p SYNC level: B = 0.286 ± 0.01 Vp-p

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 02, and press the PAUSE button of the adjustment remote commander.
3) Select page: C, address: 25, change the data and adjust the Y signal level (A) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Check that the SYNC signal level (B) is specified value.
6) Select page: 3, address: 0C, and set data: 00, and press the PAUSE button.
7) Select page: 0, address: 01, and set data: 00.

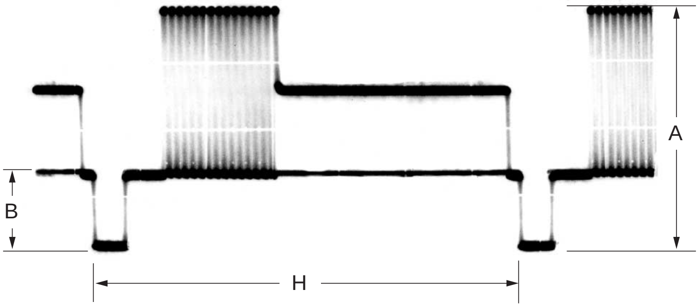


Fig. 5-3-7

11. Playback C level Adjustment (JC-21 Board)

Mode	E-E
Signal	No signal
Measuring Point	Pin ⑮ of CN1101 (CL1124)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	26, 27
Specified value	CR level: A = 0.714 ± 0.01 Vp-p CB level: B = 0.714 ± 0.01 Vp-p

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 02, and press the PAUSE button of the adjustment remote commander.
3) Select page: C, address: 26, change the data and adjust the CR signal level (A) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: C, address: 27, change the data and adjust the CB signal level (B) to the specified value.
6) Press the PAUSE button of the adjustment remote commander.
7) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
8) Select page: 0, address: 01, and set data: 00.

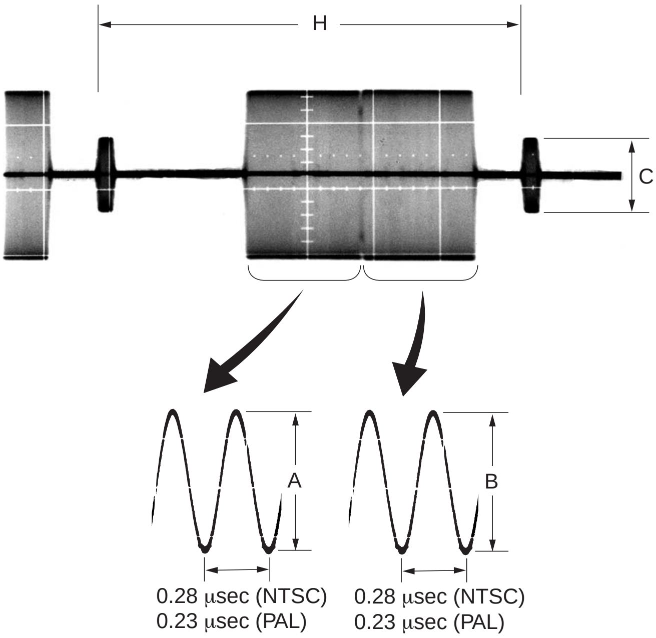


Fig. 5-3-8

3-4-2. General Adjustment

1. Playback Sync Level Adjustment (VD-032 Board)

Mode	Playback
Signal	Arbitrary
Measurement Point	COMPONENT OUT Y terminal (75 Ω terminated) VIDEO OUT terminal (75 Ω terminated) S VIDEO OUT Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	9D
Specified Value	Adjustment : A = 286 ± 5 mVp-p (NTSC) A = 300 ± 5 mVp-p (PAL) Check : A = 286 ± 7 mVp-p (NTSC) A = 300 ± 7 mVp-p (PAL)

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Select page: E, address: 9D, change the data and adjust the SYNC level (A) of the component Y signal output to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Check the composite output and the SYNC level (A) of the S Video Y signal output to the specified value.
6) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
7) Select page: 0, address: 01, and set data: 00.

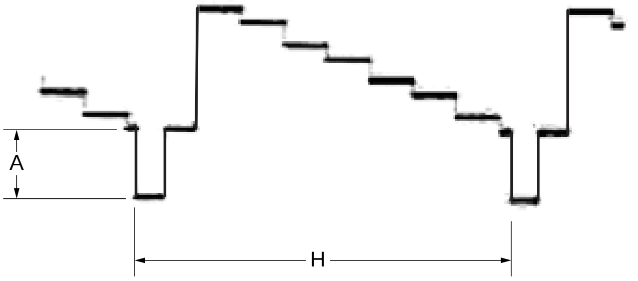


Fig. 5-3-9

2. Playback Blanking Level Adjustment with 0% Setup (VD-032 Board)

Mode	Playback
Signal	Arbitrary
Measurement Point	COMPONENT OUT Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	AA
Specified Value	A = 0 ± 3 mV

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Select page: E, address: AA, change the data and adjust the blanking level (A) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
6) Select page: 0, address: 01, and set data: 00.

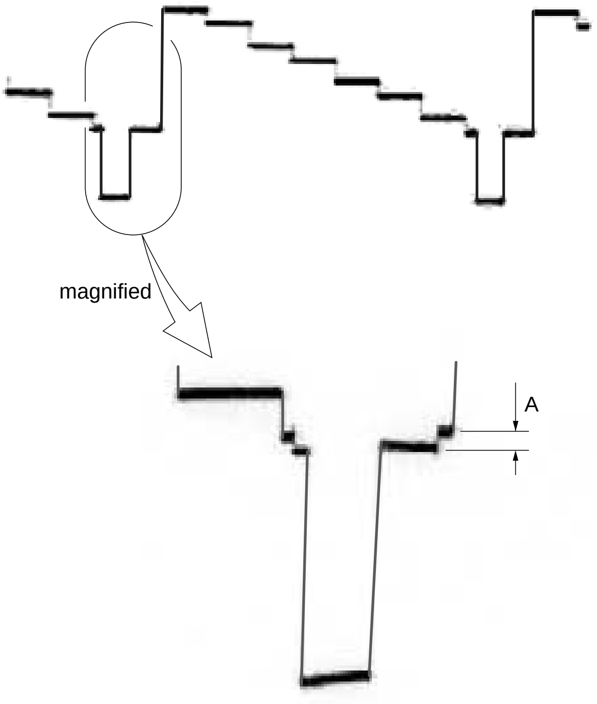


Fig. 5-3-10

3. Playback Y Signal Level Adjustment with 0% Setup (VD-032 Board)

Mode	Playback
Signal	Arbitrary
Measurement Point	COMPONENT OUT Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	AC
Specified Value	A = 822 ± 10 mVp-p (NTSC) A = 825 ± 10 mVp-p (PAL)

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Select page: E, address: AC, change the data and adjust the component Y signal level (A) to the specified value. Read the this adjustment data, and this data is named D_{AC}.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: E, address: BA, set data: D_{AC}, and press the PAUSE button.
6) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
7) Select page: 0, address: 01, and set data: 00.

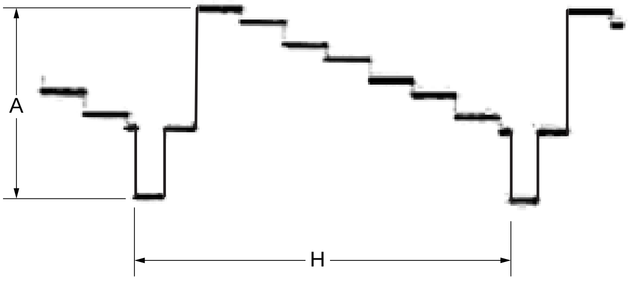


Fig. 5-3-11

4. Playback CR Signal Level Adjustment with 0% Setup (VD-032 Board)

Mode	Playback
Signal	Arbitrary
Measurement Point	COMPONENT OUT R-Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	AE
Specified Value	A = 757 ± 10 mVp-p (NTSC) A = 525 ± 10 mVp-p (PAL)

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Select page: E, address: AE, change the data and adjust the component CR signal level (A) to the specified value. Read the this adjustment data, and this data is named D_{AE}.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: E, address: BC, set data: D_{AE}, and press the PAUSE button.
6) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
7) Select page: 0, address: 01, and set data: 00.

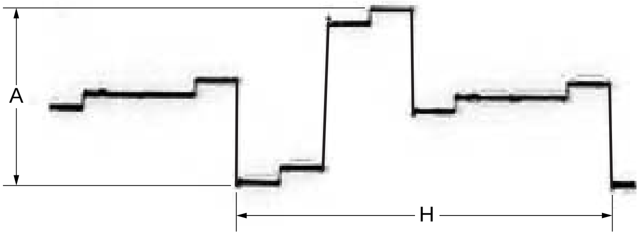


Fig. 5-3-12

5. Playback CB Signal Level Adjustment with 0% Setup (VD-032 Board)

Mode	Playback
Signal	Arbitrary
Measurement Point	COMPONENT OUT B-Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	AD
Specified Value	A = 757 ± 10 mVp-p (NTSC) A = 525 ± 10 mVp-p (PAL)

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Select page: E, address: AD, change the data and adjust the component CB signal level (A) to the specified value. Read the this adjustment data, and this data is named D_{AD}.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: E, address: BB, set data: D_{AD}, and press the PAUSE button.
6) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
7) Select page: 0, address: 01, and set data: 00.

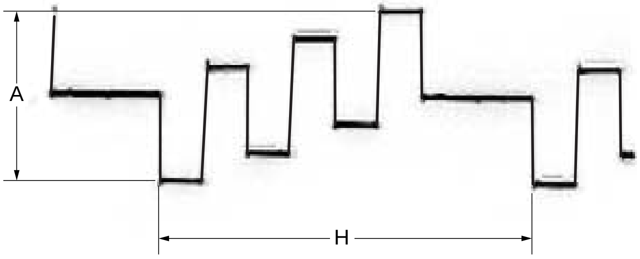


Fig. 5-3-13

6. Playback CR Signal Delay Adjustment (VD-032 Board)

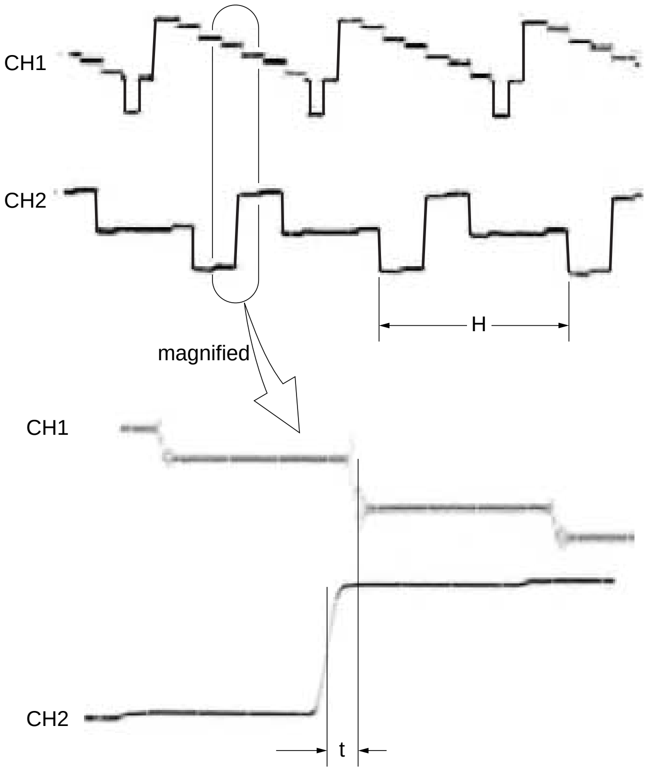
Mode	Playback
Signal	A tape that the color bar signal is recorded (Note1)
Measurement Point	CH1: COMPONENT OUT Y terminal (75 Ω terminated) CH2: COMPONENT OUT R-Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	9C
Specified Value	t = 0 ± 20 nsec

Note1: A tape recorded with the status that “COLOR BAR” of “DISPLAY SET” on the menu setting is ON.

Note2: After this adjustment, check that the specified value of “Playback CR Signal Level Adjustment with 0% Setup” is satisfied.
If not satisfied, perform “Playback CR Signal Level Adjustment with 0% Setup”.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: 9C, change the data and adjust the time difference (t) between the boundary of green and magenta on Y signal and CR signal, that to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.



Align the center of Y signal falling with the center of CR signal rising.

Fig. 5-3-14

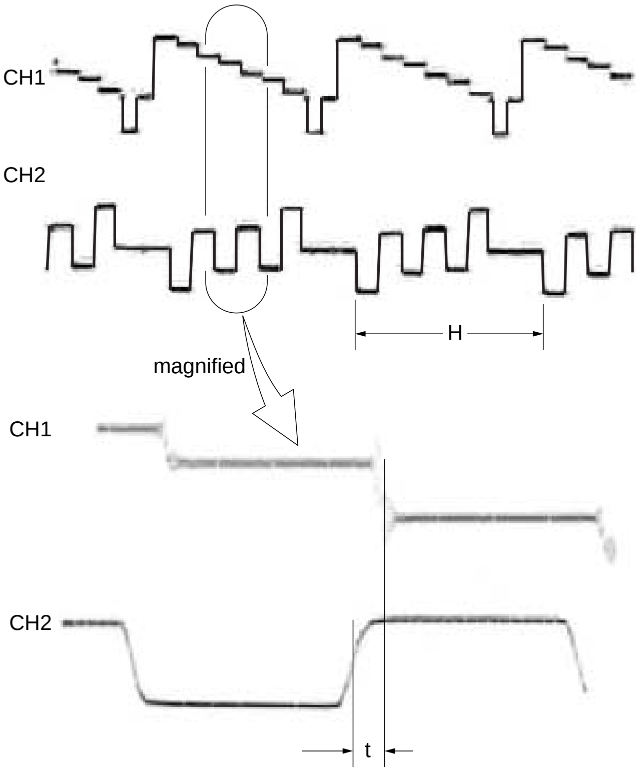
7. Playback CB Signal Delay Adjustment (VD-032 Board)

Mode	Playback
Signal	A tape that the color bar signal is recorded (Note1)
Measurement Point	CH1: COMPONENT OUT Y terminal (75 Ω terminated) CH2: COMPONENT OUT B-Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	9B
Specified Value	t = 0 ± 20 nsec

Note1: A tape recorded with the status that “COLOR BAR” of “DISPLAY SET” on the menu setting is ON.

Note2: After this adjustment, check that the specified value of “Playback CB Signal Level Adjustment with 0% Setup” is satisfied.
If not satisfied, perform “Playback CB Signal Level Adjustment with 0% Setup”

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: 9B, change the data and adjust the time difference (t) between the boundary of green and magenta on Y signal and CB signal, that to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.



Align the center of Y signal falling with the center of CB signal rising.

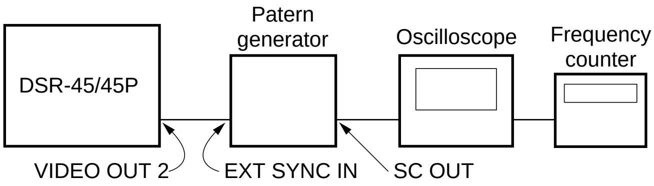
Fig. 5-3-15

8. Encoder Free Run Adjustment (VD-032 Board)

Mode	E-E
Signal	No signal (DV input) (Note1)
Measurement Point	VIDEO OUT terminal (75 Ω terminated)
Measuring Instrument	Pattern generator (External synchronization mode) Oscilloscope Frequency counter (Note2)
Adjustment Page	E
Adjustment Address	A5
Specified Value	f = 3579545 ± 10 Hz (NTSC) f = 4433618 ± 10 Hz (PAL)

Note1: Set “DV” mode with the INPUT SELECT switch.

Note2: Connection of equipment



Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: A5, change the data and adjust the encoder free run frequency (f) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

9. Carrier Balance Adjustment (VD-032 Board)

Mode	Playback
Signal	Arbitrary
Measurement Point	VIDEO OUT terminal (75 Ω terminated)
Measuring Instrument	Vectorscope (NTSC: 7.5% setup mode)
Adjustment Page	E
Adjustment Address	A3, A4
Specified Value	White luminance point settles within the circle (Ø 2 mm) on center of the vectorscope

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Set the vectorscope gain to x10.
4) Change the data on page: E, address: A3, A4 and adjust so that a white luminance point positions in the center of vectorscope.
5) Press the PAUSE button of the adjustment remote commander.
6) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
7) Select page: 0, address: 01, and set data: 00.

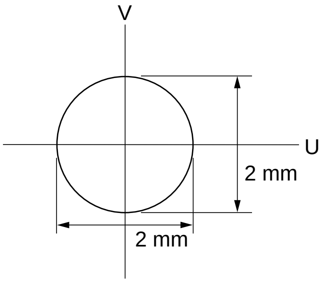


Fig. 5-3-16

10. Burst Level Adjustment (VD-032 Board)

Mode	Playback
Signal	Arbitrary
Measurement Point	VIDEO OUT terminal (75 Ω terminated)
Measuring Instrument	Vectorscope (NTSC: 7.5% setup mode) Oscilloscope
Adjustment Page	E
Adjustment Address	9F (NTSC) 9F , A0 (PAL) (Note)
Specified Value	A = 286 ± 5 mVp-p (NTSC) A = 300 ± 5 mVp-p (PAL)

Note: PAL model is the tracking adjustment in relation to address: 9F and A0.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Adjust the phase synchronization control on the vectorscope so that the burst luminance point is close to the U-axis (NTSC model) or axis of ±135° (PAL model).
4) Select page: E, address: 9F (NTSC model) or 9F, A0 (PAL model), change tha data and adjust the the burst luminance point to the 75% cursor position of the vectorscope.
5) Press the PAUSE button of the adjustment remote commander.
6) Confirm with the oscilloscope that the burst level (A) satisfied the specified value.
7) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
8) Select page: 0, address: 01, and set data: 00.

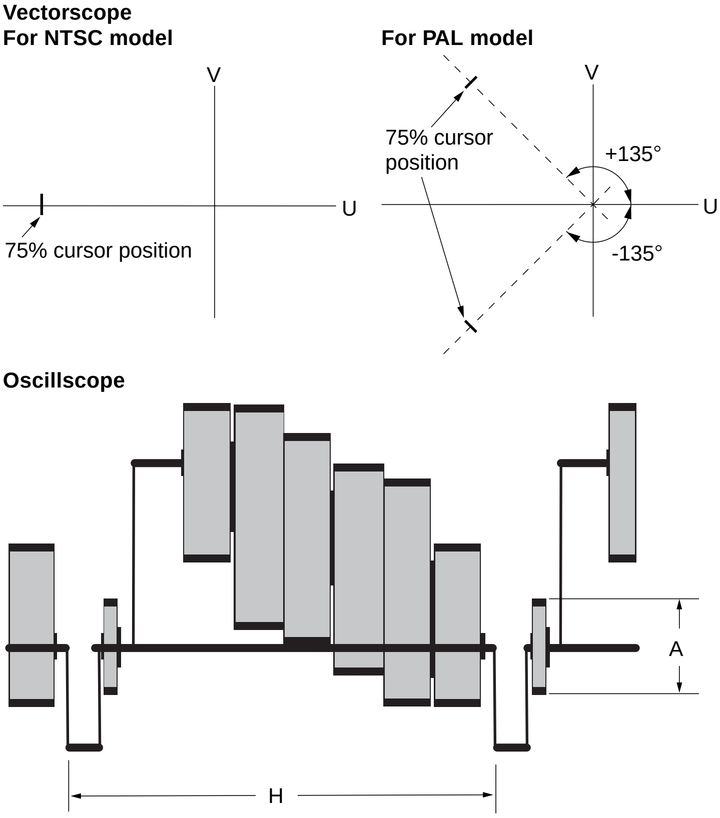


Fig. 5-3-17

11. Color Level Adjustment with 0% Setup (VD-032 Board)

Mode	Playback
Signal	Arbitrary
Measurement Point	VIDEO OUT terminal (75 Ω terminated)
Measuring Instrument	Vectorscope (NTSC: 0% setup mode)
Adjustment Page	E
Adjustment Address	A1, A2
Specified Value	From the center of ⊞ mark on the vectorscope, each luminance point must satisfy the following: Level: ± 5% Phase: ± 3º

Note: This is the tracking adjustment in relation to “SC_V Phase Adjustment”.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Only for NTSC model, set the vectorscope to the 7.5% setup mode.
4) Adjust the burst luminance point to the specified position using the PHASE and GAIN knobs of vectorscope.
5) Only for NTSC model, set the vectorscope to the 0% setup mode.
6) Change the data on page: E, addresses: A1, A2 and adjust so that each luminance point positions at the ⊞ mark on the vectorscope.
7) Press the PAUSE button of the adjustment remote commander.
8) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
9) Select page: 0, address: 01, and set data: 00.

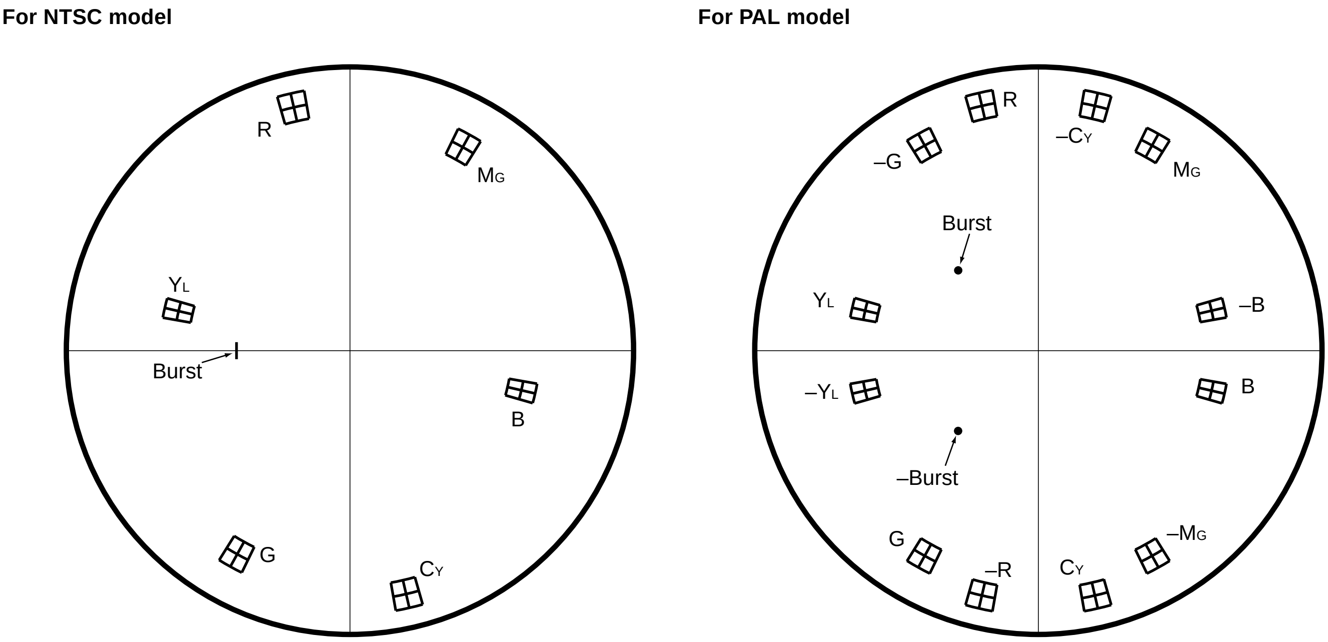
12. SC_V Phase Adjustment (VD-032 Board)

Mode	Playback
Signal	Arbitrary
Measurement Point	VIDEO OUT terminal (75 Ω terminated)
Measuring Instrument	Vectorscope (NTSC: 0% setup mode)
Adjustment Page	E
Adjustment Address	A8
Specified Value	From the center of ⊞ mark on the vectorscope, each luminance point must satisfy the following: Level: ± 5% Phase: ± 3º

Note: This is the tracking adjustment in relation to “Color Level Adjustment with 0% Setup”.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Only for NTSC model, set the vectorscope to the 7.5% setup mode.
4) Adjust the burst luminance point to the specified position using the PHASE and GAIN knobs of vectorscope.
5) Only for NTSC model, set the vectorscope to the 0% setup mode.
6) Change the data on page: E, address: A8 and adjust so that each luminance point positions at the ⊞ mark on the vectorscope.
7) Press the PAUSE button of the adjustment remote commander.
8) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
9) Select page: 0, address: 01, and set data: 00.



For NTSC model

For PAL model

Fig. 5-3-18

13. Playback Blanking Level Adjustment with 7.5% Setup (VD-032 Board) (DSR-45)

Mode	Playback
Signal	Arbitrary
Measurement Point	COMPONENT OUT Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	C8
Specified Value	A = 53.6 ± 3 mV (7.5 IRE)

Note: Perform this adjustment after inserting and playing a tape into the set and setting "SETUP" for "VIDEO LVL" of the "VIDEO SET" menu to 7.5%.
After the adjustment finished, return "SETUP" to 0%.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Select page: E, address: C8, change the data and adjust the blanking level (A) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
6) Select page: 0, address: 01, and set data: 00.

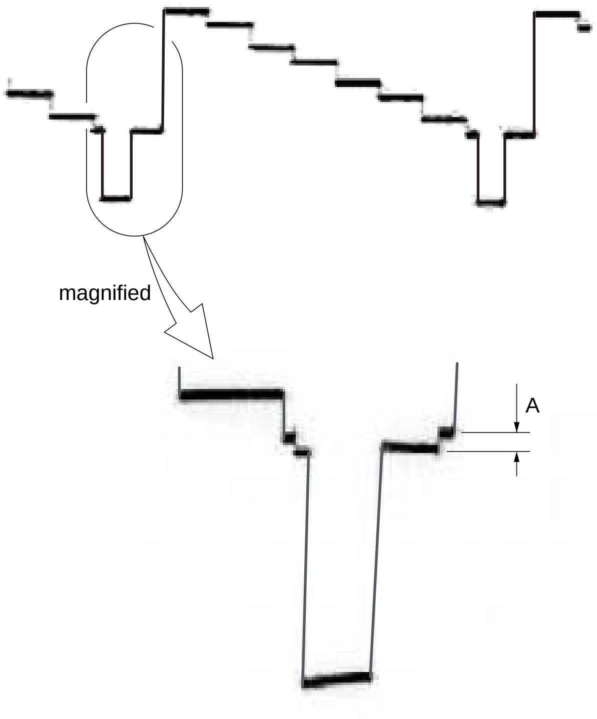


Fig. 5-3-19

14. Playback Y Signal Level Adjustment with 7.5% Setup (VD-032 Board) (DSR-45)

Mode	Playback
Signal	Arbitrary
Measurement Point	COMPONENT OUT Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	C2
Specified Value	A = 835 ± 10 mVp-p

Note: Perform this adjustment after inserting and playing a tape into the set and setting "SETUP" for "VIDEO LVL" of the "VIDEO SET" menu to 7.5%.
After the adjustment finished, return "SETUP" to 0%.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Select page: E, address: C2, change the data and adjust the component Y signal level (A) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
6) Select page: 0, address: 01, and set data: 00.

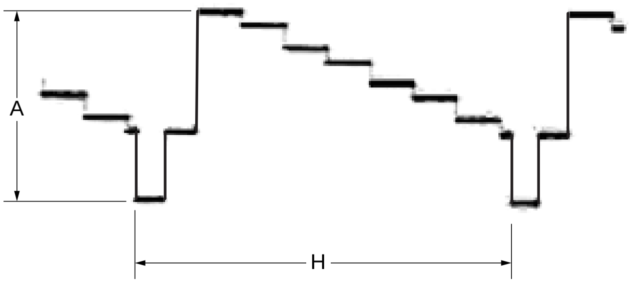


Fig. 5-3-20

15. Playback CR Signal Level Adjustment with 7.5% Setup (VD-032 Board) (DSR-45)

Mode	Playback
Signal	Arbitrary
Measurement Point	COMPONENT OUT R-Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	C4
Specified Value	A = 700 ± 10 mVp-p

Note: Perform this adjustment after inserting and playing a tape into the set and setting “SETUP” for “VIDEO LVL” of the “VIDEO SET” menu to 7.5%.
After the adjustment finished, return “SETUP” to 0%.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Select page: E, address: C4, change the data and adjust the component CR signal level (A) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
6) Select page: 0, address: 01, and set data: 00.

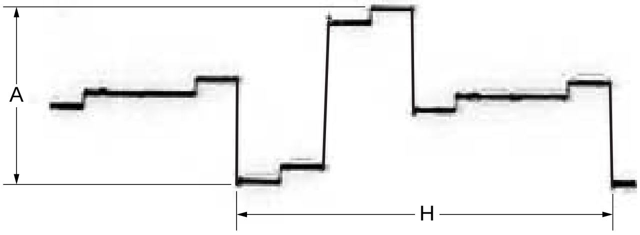


Fig. 5-3-21

16. Playback CB Signal Level Adjustment with 7.5% Setup (VD-032 Board) (DSR-45)

Mode	Playback
Signal	Arbitrary
Measurement Point	COMPONENT OUT B-Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	C3
Specified Value	A = 700 ± 10 mVp-p

Note: Perform this adjustment after inserting and playing a tape into the set and setting “SETUP” for “VIDEO LVL” of the “VIDEO SET” menu to 7.5%.
After the adjustment finished, return “SETUP” to 0%.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Select page: E, address: C3, change the data and adjust the component CB signal level (A) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
6) Select page: 0, address: 01, and set data: 00.

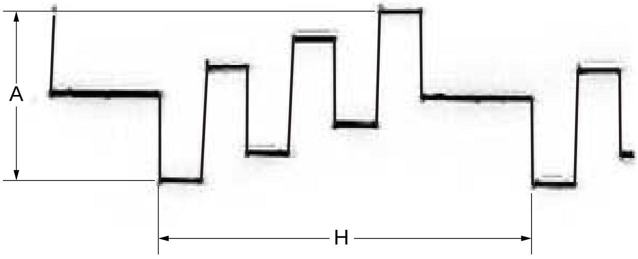


Fig. 5-3-22

17. Color Level Adjustment with 7.5% Setup (VD-032 Board) (DSR-45)

Mode	Playback
Signal	Arbitrary
Measurement Point	VIDEO OUT terminal (75 Ω terminated)
Measuring Instrument	Vectorscope (7.5% setup mode)
Adjustment Page	E
Adjustment Address	C0, C1
Specified Value	From the center of ⊞ mark on the vectorscope, each luminance point must satisfy the following: Level: ± 5% Phase: ± 3º

Note: Perform this adjustment after inserting and playing a tape into the set and setting “SETUP” for “VIDEO LVL” of the “VIDEO SET” menu to 7.5%.
After the adjustment finished, return “SETUP” to 0%.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Adjust the burst luminance point to the specified position using the PHASE and GAIN knobs of vectorscope.
4) Change the data on page: E, addresses: C0, C1 and adjust so that each luminance point positions at the ⊞ mark on the vectorscope.
5) Press the PAUSE button of the adjustment remote commander.
6) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
7) Select page: 0, address: 01, and set data: 00.

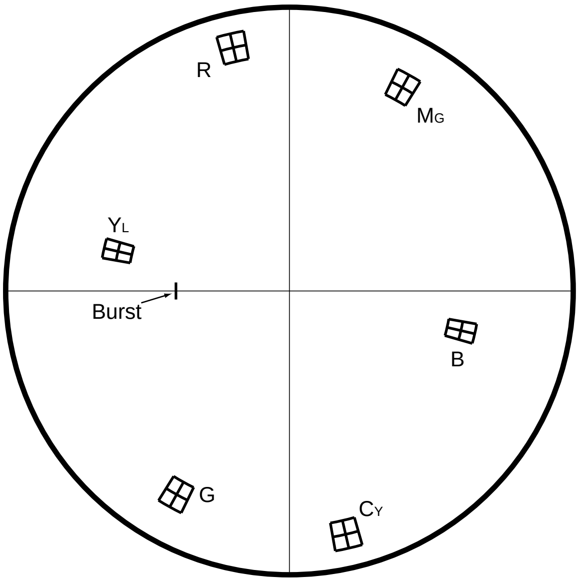


Fig. 5-3-23

18. Video Output Level Check (VD-032 Board)

Mode	Playback
Signal	Arbitrary
Measurement Point	VIDEO OUT terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Specified Value	A = 822 ± 20 mVp-p (NTSC) A = 825 ± 20 mVp-p (PAL)

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Check that the Y level of video signal (A) is satisfied the specified value.
4) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
5) Select page: 0, address: 01, and set data: 00.

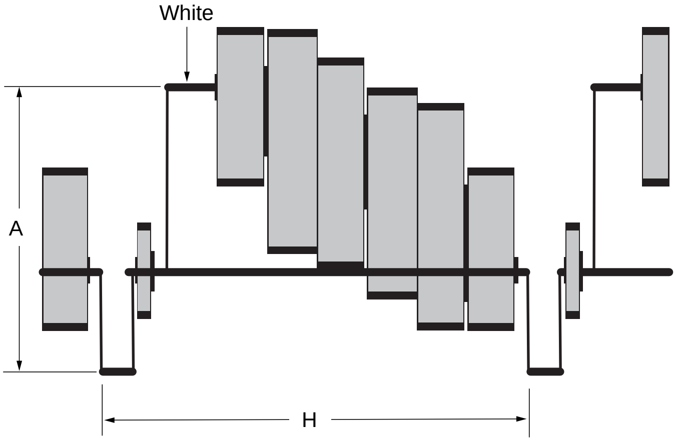


Fig. 5-3-24

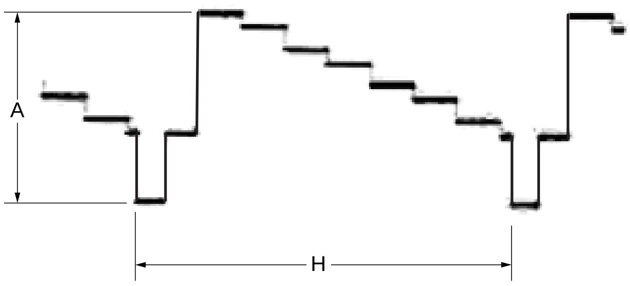
19. S-Video Output Level Check (VD-032 Board)

Mode	Playback
Signal	Arbitrary
Measurement Point	S VIDEO OUT Y terminal (75 Ω terminated) S VIDEO OUT C terminal (75 Ω terminated)
Measuring Instrument	Vectorscope (NTSC: 0% setup mode) Oscilloscope
Specified Value	Y signal: A = 822 ± 20 mVp-p (NTSC) A = 825 ± 20 mVp-p (PAL) C signal: From the center of ⊞ mark on the vectorscope, each luminance point must satisfy the following: Level: ± 5% Phase: ± 3º

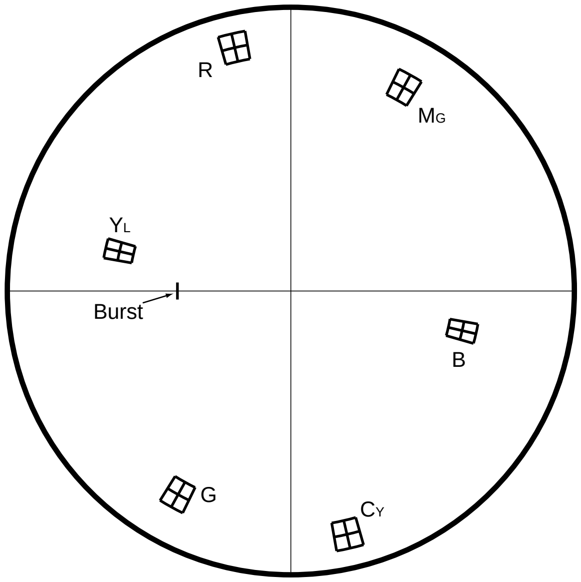
Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Confirm that the Y signal level (A) satisfied the specified value.
4) Only for NTSC model, set the vectorscope to the 7.5% setup mode.
5) Adjust the burst luminance point to the specified position using the PHASE and GAIN knobs of vectorscope.
6) Only for NTSC model, set the vectorscope to the 0% setup mode.
7) Make sure that each luminance point of C signal positions at the ⊞ mark on the vectorscope.
8) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
9) Select page: 0, address: 01, and set data: 00.

Y signal



C signal
For NTSC model



For PAL model

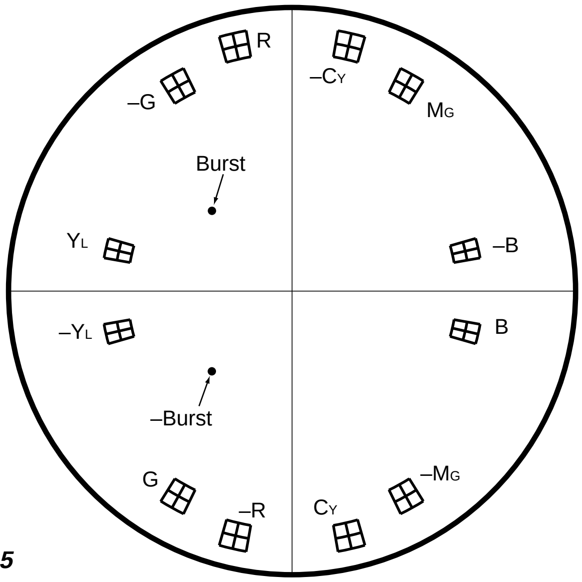


Fig. 5-3-25

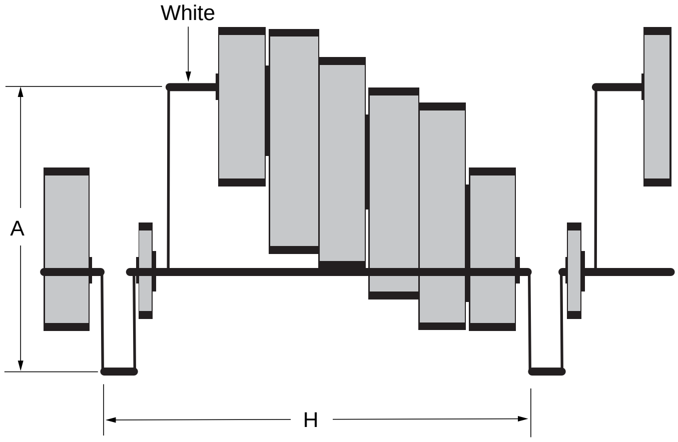
20. Monitor Terminal Output Level Adjustment (JC-21 Board)

Mode	Playback
Signal	Arbitrary
Measurement Point	MONITOR VIDEO terminal (75 Ω terminated)
Measuring Instrument	Vectorscope (NTSC: 0% setup mode) Oscilloscope
Adjustment Page	C
Adjustment Address	25 (Y level) 26, 27 (C level)
Specified Value	Y level: A = 822 ± 20 mVp-p (NTSC) A = 825 ± 20 mVp-p (PAL) C level: From the center of ⊞ mark on the vectorscope, each luminance point must satisfy the following: Level: ± 5% Phase: ± 3°

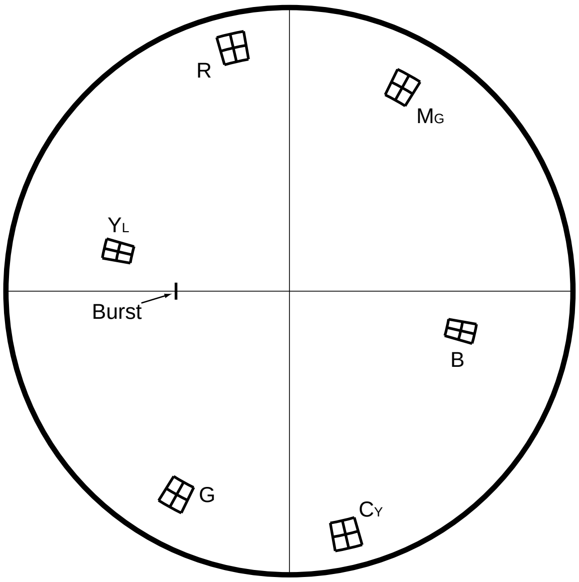
Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Select page: C, address: 25, change the data and adjust the Y level (A) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Only for NTSC model, set the vectorscope to the 7.5% setup mode.
6) Adjust the burst luminance point to the specified position using the PHASE and GAIN knobs of vectorscope.
7) Only for NTSC model, set the vectorscope to the 0% setup mode.
8) Change the data on page: C, addresses: 26, 27 and adjust so that each luminance point positions at the ⊞ mark on the vectorscope.
9) Press the PAUSE button of the adjustment remote commander.
10) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
11) Select page: 0, address: 01, and set data: 00.

Y level



C level
For NTSC model



For PAL model

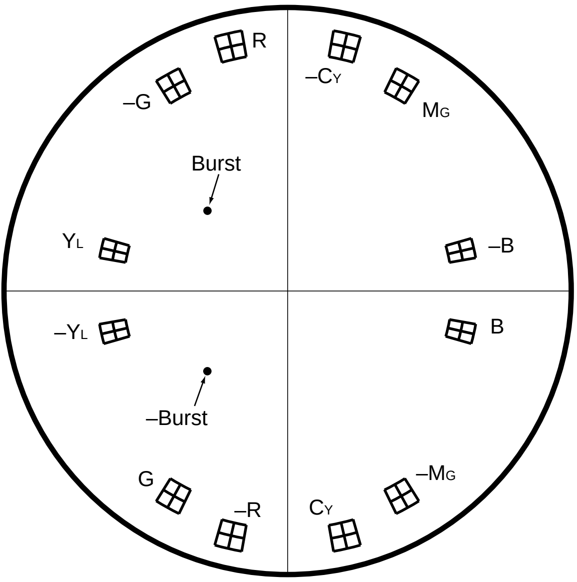


Fig. 5-3-26

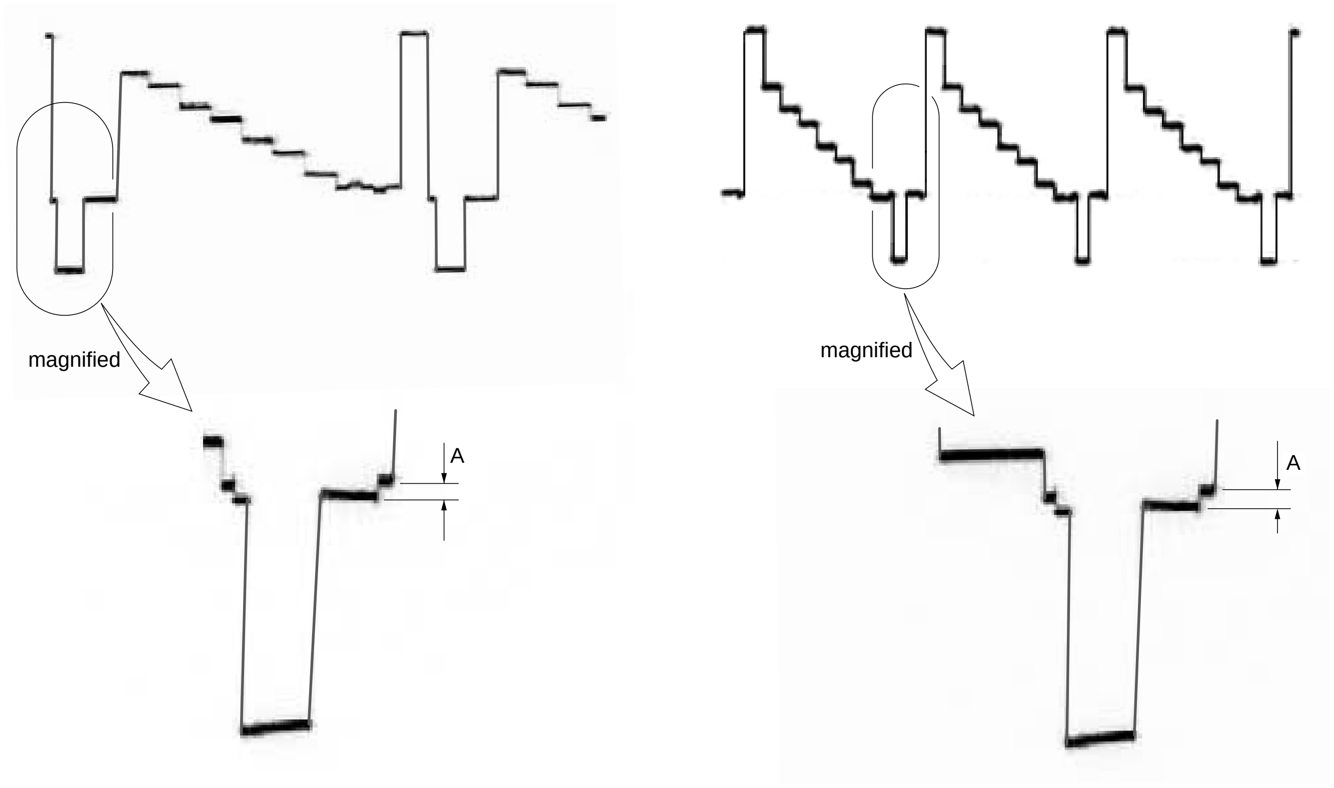
21. E-E Blanking Level Adjustment (VD-032 Board)

Mode	E-E
Signal	Color bar (NTSC: with 7.5% setup) (COMPONENT input) (Note)
Measurement Point	COMPONENT OUT Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	CC
Specified Value	A = 0 ± 3 mV

Note: Set “COMPONENT” mode with INPUT SELECT switch

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: CC, change the data and adjust the blanking level (A) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.



For NTSC model

For PAL model

Fig. 5-3-27

22. Component E-E Y Signal Level Adjustment (VD-032 Board)

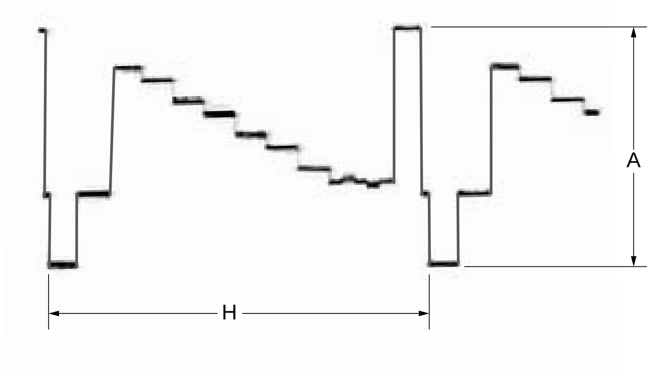
Mode	E-E
Signal	Color bar (COMPONENT input) (Note)
Measurement Point	COMPONENT OUT Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	94
Specified Value	A = 1000 ± 10 mVp-p

Note: Set "COMPONENT" mode with INPUT SELECT switch

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: 94, change the data and adjust the component Y signal level (A) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

For NTSC model



For PAL model

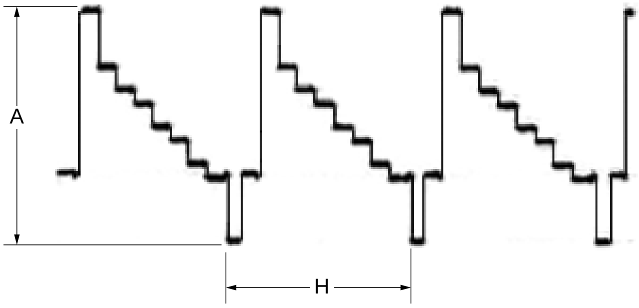


Fig. 5-3-28

23. Component E-E CR Signal Level Adjustment (VD-032 Board)

Mode	E-E
Signal	Color bar (NTSC: with 7.5% setup) (COMPONENT input) (Note)
Measurement Point	COMPONENT OUT R-Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	96
Specified Value	A = 700 ± 10 mVp-p (NTSC) A = 525 ± 10 mVp-p (PAL)

Note: Set "COMPONENT" mode with INPUT SELECT switch

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: 96, change the data and adjust the component CR signal level (A) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

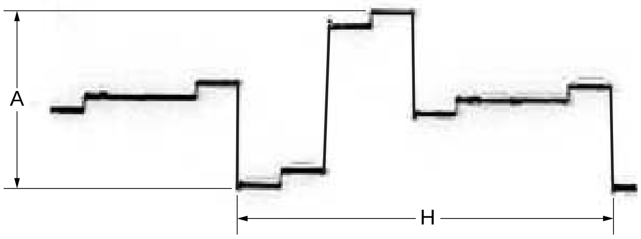


Fig. 5-3-29

24. Component E-E CB Signal Level Adjustment (VD-032 Board)

Mode	E-E
Signal	Color bar (NTSC: with 7.5% setup) (COMPONENT input) (Note)
Measurement Point	COMPONENT OUT B-Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	95
Specified Value	A = 700 ± 10 mVp-p (NTSC) A = 525 ± 10 mVp-p (PAL)

Note: Set "COMPONENT" mode with INPUT SELECT switch

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: 95, change the data and adjust the component CB signal level (A) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

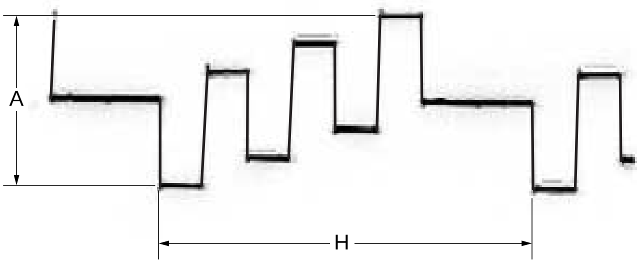


Fig. 5-3-30

25. Component E-E CR Signal Delay Adjustment (VD-032 Board)

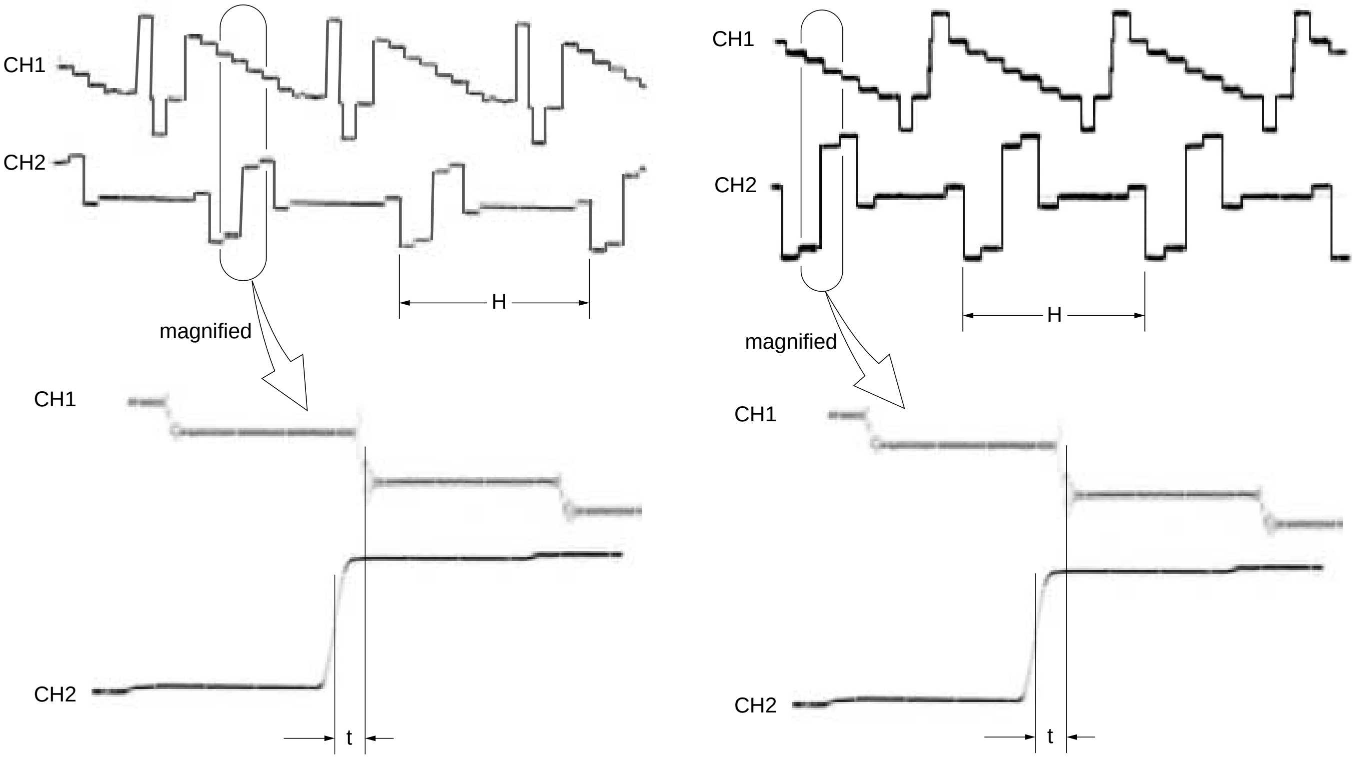
Mode	E-E
Signal	Color bar (COMPONENT input) (Note1)
Measurement Point	CH1: COMPONENT OUT Y terminal (75 Ω terminated) CH2: COMPONENT OUT R-Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	99
Specified Value	t = 0 ± 20 nsec

Note1: Set "COMPONENT" mode with INPUT SELECT switch

Note2: After this adjustment, check that the specified value of "Component E-E CR Signal Level Adjustment" is satisfied.
If not satisfied, perform "Component E-E CR Signal Level Adjustment".

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: 99, change the data and adjust the time difference (t) between the boundary of green and magenta on Y signal and CR signal, that to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.



For NTSC model

For PAL model

Align the center of Y signal falling
with the center of CR signal rising.

Fig. 5-3-31

26. Component E-E CB Signal Delay Adjustment (VD-032 Board)

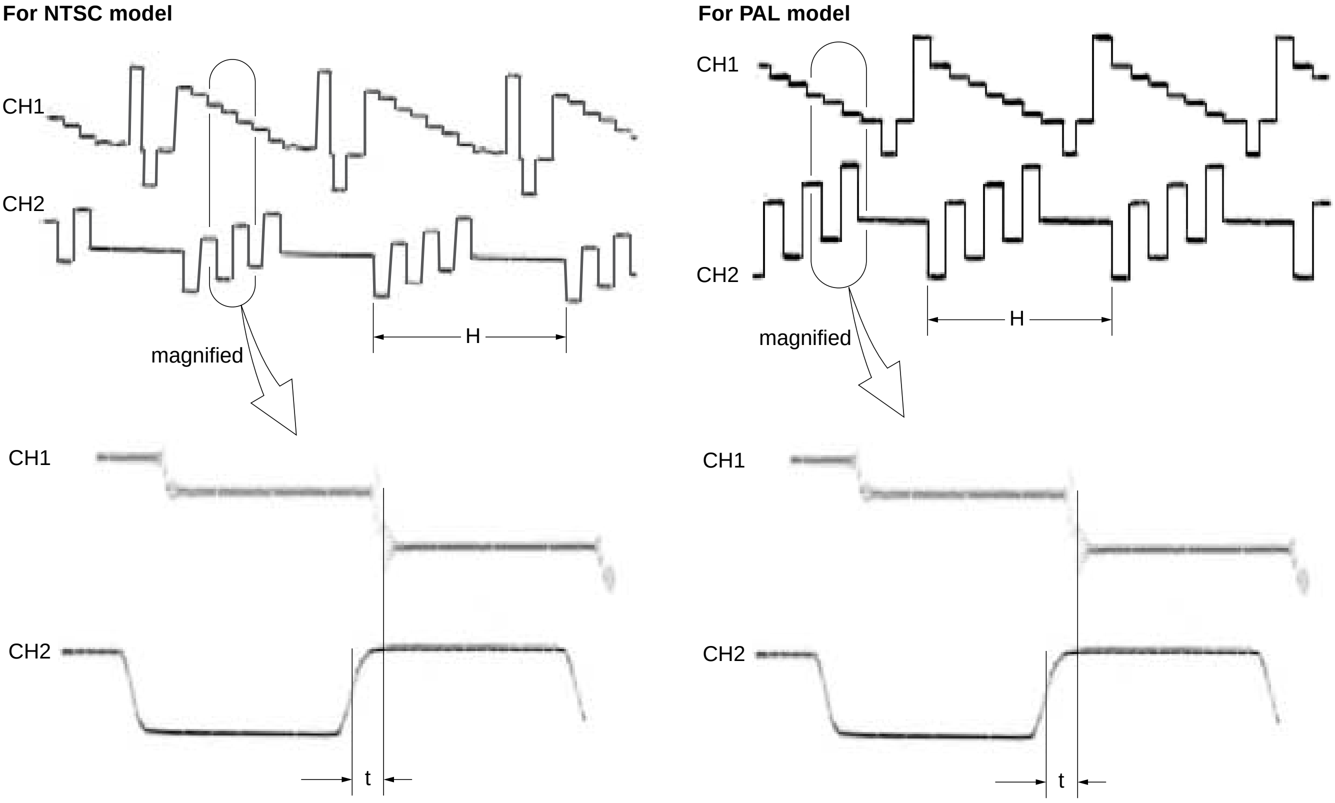
Mode	E-E
Signal	Color bar (COMPONENT input) (Note1)
Measurement Point	CH1: COMPONENT OUT Y terminal (75 Ω terminated) CH2: COMPONENT OUT B-Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	98
Specified Value	t = 0 ± 20 nsec

Note1: Set “COMPONENT” mode with INPUT SELECT switch

Note2: After this adjustment, check that the specified value of “Component E-E CB Signal Level Adjustment” is satisfied.
If not satisfied, perform “Component E-E CB Signal Level Adjustment”.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: 98, change the data and adjust the time difference (t) between the boundary of green and magenta on Y signal and CB signal, that to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.


For NTSC model

For PAL model

Align the center of Y signal falling
with the center of CB signal rising.

Fig. 5-3-32

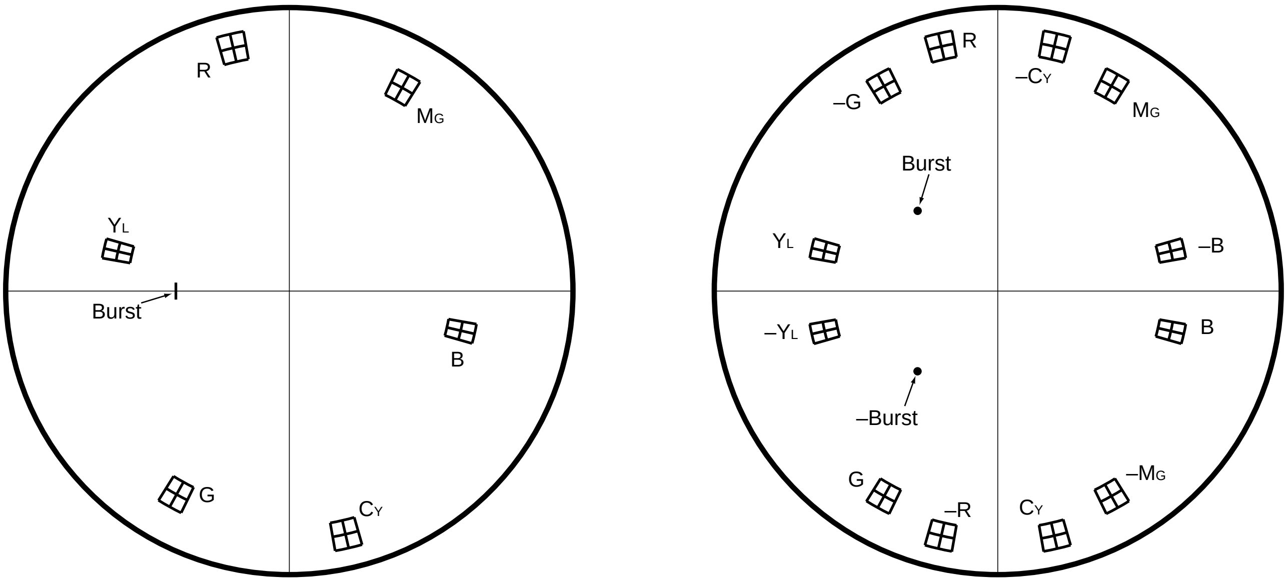
27. E-E Color Level Adjustment (VD-032 Board)

Mode	E-E
Signal	Color bar (NTSC: with 7.5% setup) (COMPONENT input) (Note)
Measurement Point	VIDEO OUT terminal (75 Ω terminated)
Measuring Instrument	Vectorscope (NTSC: 7.5% setup mode)
Adjustment Page	E
Adjustment Address	CA, CB
Specified Value	From the center of ⊞ mark on the vectorscope, each luminance point must satisfy the following: Level: ± 5% Phase: ± 3°

Note: Set “COMPONENT” mode with INPUT SELECT switch

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Adjust the burst luminance point to the specified position using the PHASE and GAIN knobs of vectorscope.
3) Change the data on page: E, addresses: CA, CB and adjust so that each luminance point positions at the ⊞ mark on the vectorscope.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 0, address: 01, and set data: 00.



For NTSC model

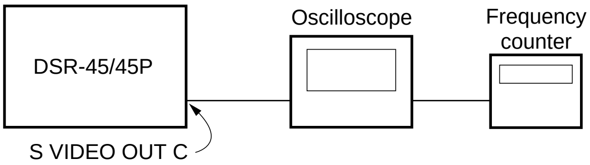
For PAL model

Fig. 5-3-33

28. Decoder Free Run Adjustment (VD-032 Board)

Mode	E-E
Signal	Color bar (burst signal and chroma signal OFF) (S VIDEO input) (Note1)
Measurement Point	S VIDEO OUT C terminal
Measuring Instrument	Oscilloscope Frequency counter (Note2)
Adjustment Page	E
Adjustment Address	A9 (NTSC) 91 (PAL)
Specified Value	f = 3579545 ± 20 Hz (NTSC) f = 4433618 ± 20 Hz (PAL)

Note1: Set “S VIDEO” mode with INPUT SELECT switch
Note2: Connection of equipment



Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 9, address: 06, set data: 20, and press the PAUSE button.
3) Select page: E, address: A9 (NTSC model) or 91 (PAL model), change the data and adjust the decoder free run frequency (f) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 9, address: 06, set data: 00, and press the PAUSE button.
6) Select page: 0, address: 01, and set data: 00.

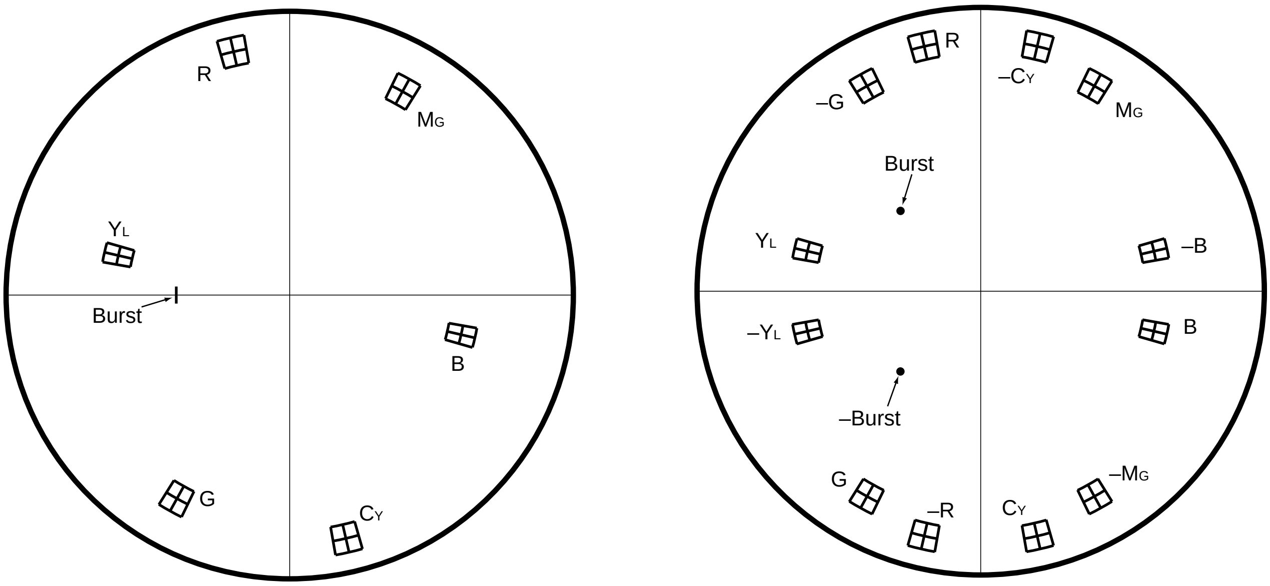
29. Decoder HUE Adjustment (VD-032 Board)

Mode	E-E
Signal	Color bar (NTSC: with 7.5% setup) (S VIDEO input) (Note)
Measurement Point	VIDEO OUT terminal (75 Ω terminated)
Measuring Instrument	Vectorscope (NTSC: 7.5% setup mode)
Adjustment Page	E
Adjustment Address	93
Specified Value	From the center of ⊞ mark on the vectorscope, each luminance point must satisfy the following: Level: ± 5% Phase: ± 3°

Note: Set “S VIDEO” mode with INPUT SELECT switch

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Adjust the burst luminance point to the specified position using the PHASE and GAIN knobs of vectorscope.
3) Change the data on page: E, address: 93 and adjust so that a blue luminance point positions at the ⊞ mark on the vectorscope. At this time, make sure that each luminance point satisfies the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 0, address: 01, and set data: 00.


For NTSC model

For PAL model

Fig. 5-3-34

30. S Video E-E Y Signal Level Adjustment (VD-032 Board)

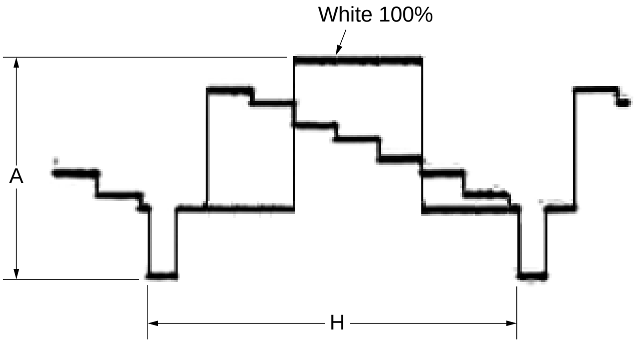
Mode	E-E
Signal	Color bar (S VIDEO input) (Note)
Measurement Point	COMPONENT OUT Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	BD
Specified Value	A = 1000 ± 10 mVp-p

Note: Set "S VIDEO" mode with INPUT SELECT switch

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: BD, change the data and adjust the component Y signal level (A) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

For NTSC model



For PAL model

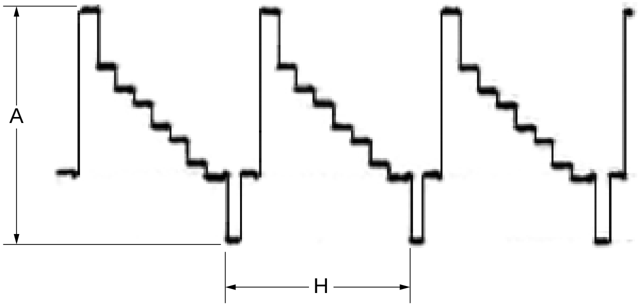


Fig. 5-3-35

31. S Video E-E CR Signal Level Adjustment (VD-032 Board)

Mode	E-E
Signal	Color bar (NTSC: with 7.5% setup) (S VIDEO input) (Note)
Measurement Point	COMPONENT OUT R-Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	BF
Specified Value	A = 700 ± 10 mVp-p (NTSC) A = 525 ± 10 mVp-p (PAL)

Note: Set "S VIDEO" mode with INPUT SELECT switch

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: BF, change the data and adjust the component CR signal level (A) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

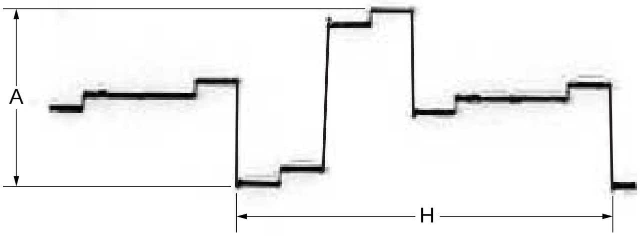


Fig. 5-3-36

32. S Video E-E CB Signal Level Adjustment (VD-032 Board)

Mode	E-E
Signal	Color bar (NTSC: with 7.5% setup) (S VIDEO input) (Note)
Measurement Point	COMPONENT OUT B-Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	BE
Specified Value	A = 700 ± 10 mVp-p (NTSC) A = 525 ± 10 mVp-p (PAL)

Note: Set “S VIDEO” mode with INPUT SELECT switch

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: BE, change the data and adjust the component CB signal level (A) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

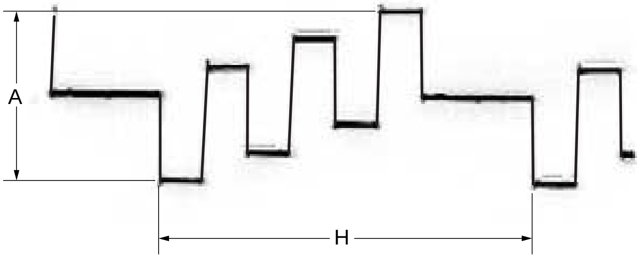


Fig. 5-3-37

33. S Video E-E CR Signal Delay Adjustment (VD-032 Board)

Mode	E-E
Signal	Color bar (S VIDEO input) (Note1)
Measurement Point	CH1: COMPONENT OUT Y terminal (75 Ω terminated) CH2: COMPONENT OUT R-Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	B6
Specified Value	t = 0 ± 20 nsec

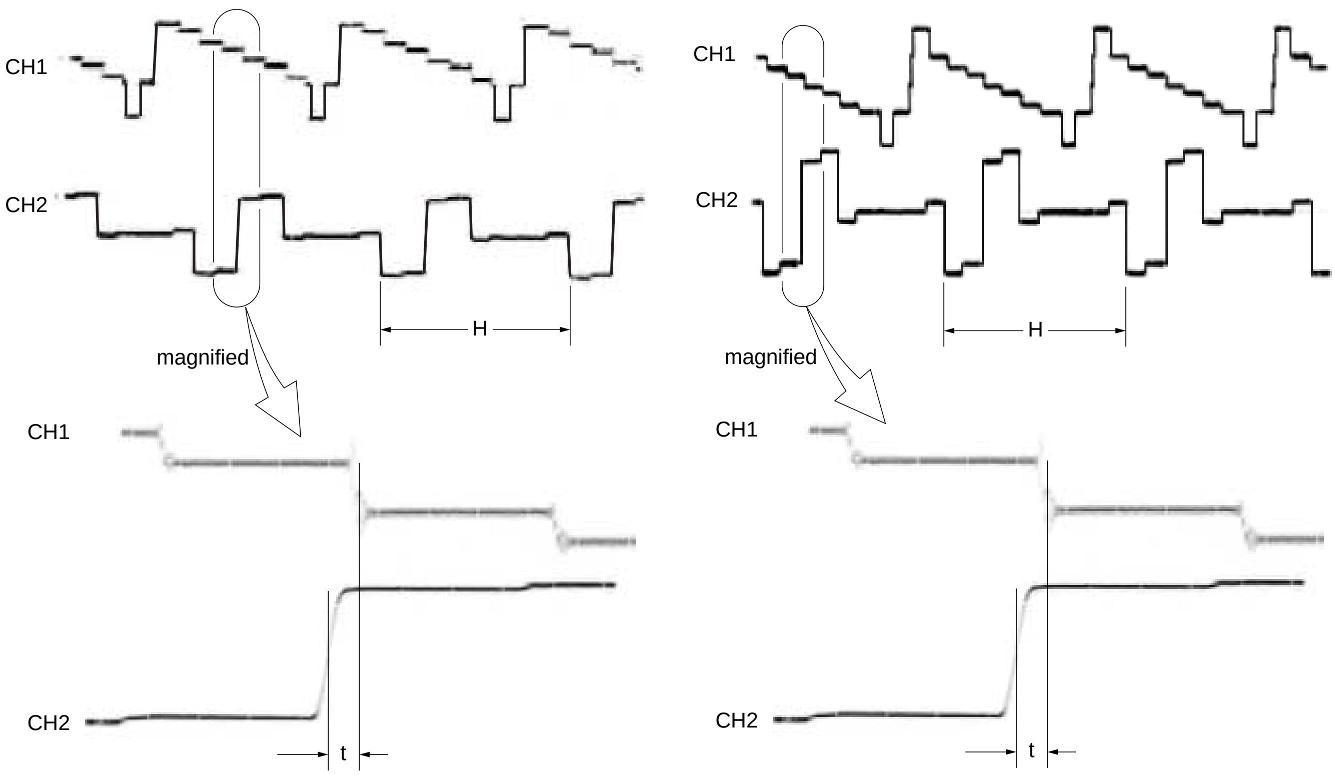
Note1: Set “S VIDEO” mode with INPUT SELECT switch

Note2: After this adjustment, check that the specified value of “S Video E-E CR Signal Level Adjustment” is satisfied. If not satisfied, perform “S Video E-E CR Signal Level Adjustment”.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: B6, change the data and adjust the time difference (t) between the boundary of green and magenta on Y signal and CR signal, that to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

For NTSC model **For PAL model**



Align the center of Y signal falling
with the center of CR signal rising.

Fig. 5-3-38

34. S Video E-E CB Signal Delay Adjustment (VD-032 Board)

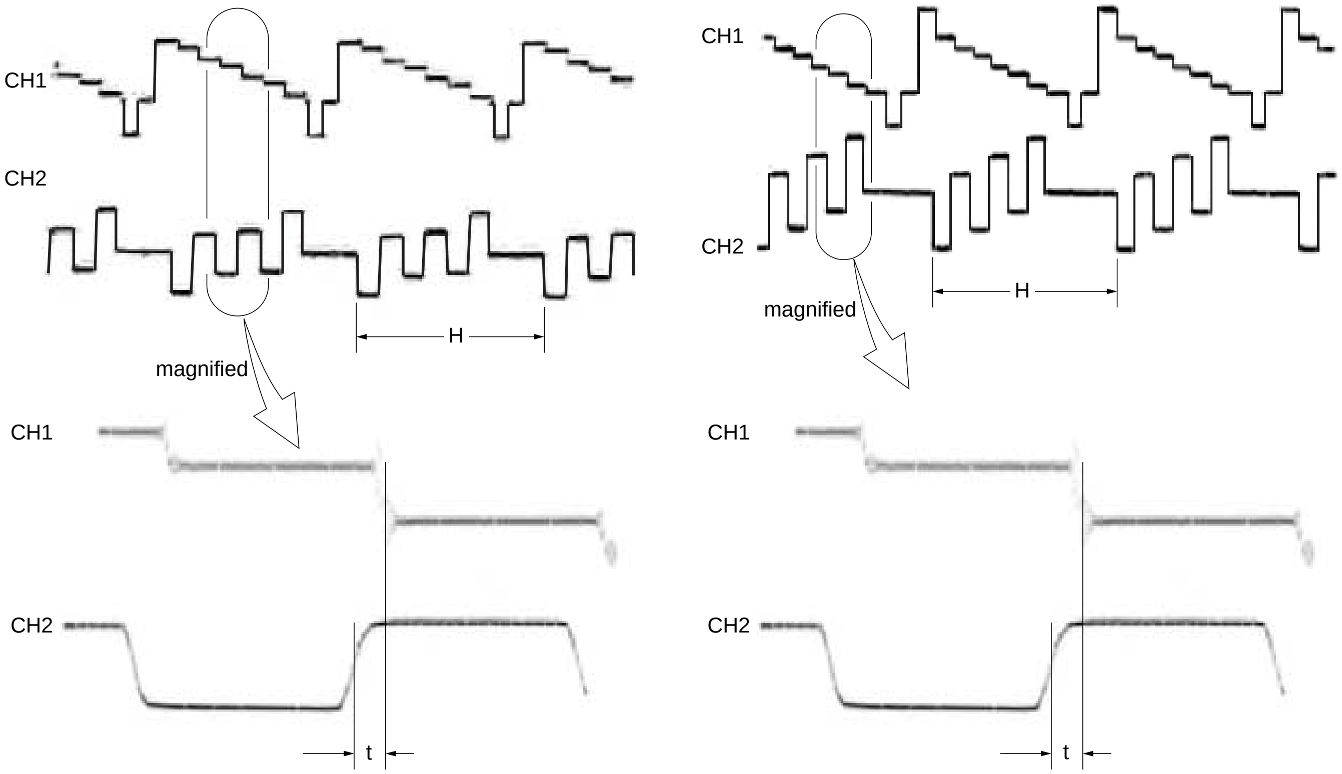
Mode	E-E
Signal	Color bar (S VIDEO input) (Note1)
Measurement Point	CH1: COMPONENT OUT Y terminal (75 Ω terminated) CH2: COMPONENT OUT B-Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	B5
Specified Value	t = 0 ± 20 nsec

Note1: Set “S VIDEO” mode with INPUT SELECT switch

Note2: After this adjustment, check that the specified value of “S Video E-E CB Signal Level Adjustment” is satisfied. If not satisfied, perform “S Video E-E CB Signal Level Adjustment”.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: B5, change the data and adjust the time difference (t) between the boundary of green and magenta on Y signal and CB signal, that to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.



For NTSC model

For PAL model

Align the center of Y signal falling
with the center of CB signal rising.

Fig. 5-3-39

35. Composite E-E Y Signal Level Adjustment (VD-032 Board)

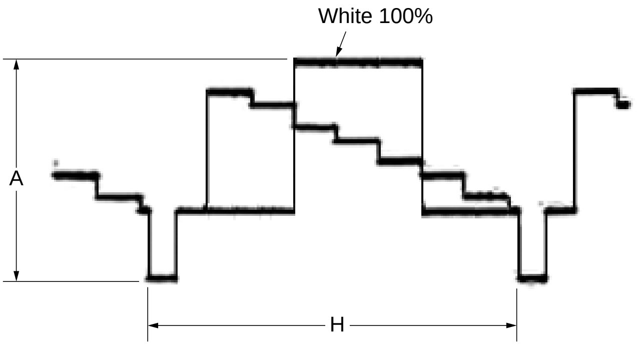
Mode	E-E
Signal	Color bar (VIDEO input) (Note)
Measurement Point	COMPONENT OUT Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	90
Specified Value	A = 1000 ± 10 mVp-p

Note: Set “VIDEO” mode with INPUT SELECT switch

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: E, address: 90, change the data and adjust the component Y signal level (A) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

For NTSC model



For PAL model

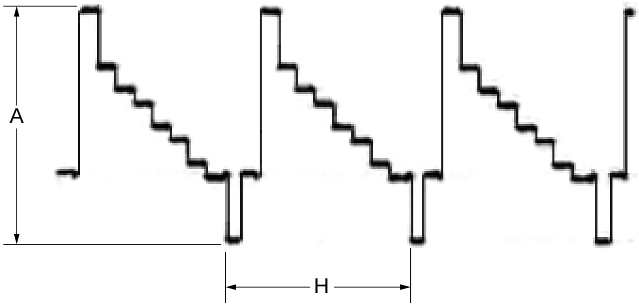


Fig. 5-3-40

36. Composite E-E CR Signal Level Check (VD-032 Board)

Mode	E-E
Signal	Color bar (NTSC: with 7.5% setup) (VIDEO input) (Note)
Measurement Point	COMPONENT OUT R-Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Specified Value	A = 700 ± 10 mVp-p (NTSC) A = 525 ± 10 mVp-p (PAL)

Note: Set “VIDEO” mode with INPUT SELECT switch

Adjusting method:

1) Check the component CR signal level (A) to the specified value.

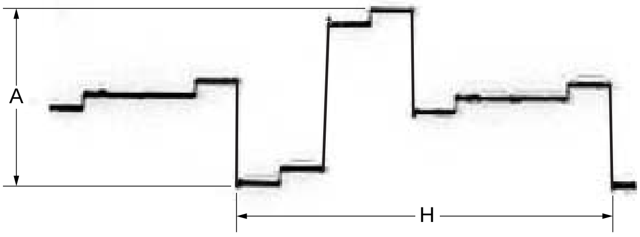


Fig. 5-3-41

37. Composite E-E CB Signal Level Check (VD-032 Board)

Mode	E-E
Signal	Color bar (NTSC: with 7.5% setup) (VIDEO input) (Note)
Measurement Point	COMPONENT OUT B-Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Specified Value	A = 700 ± 10 mVp-p (NTSC) A = 525 ± 10 mVp-p (PAL)

Note: Set “VIDEO” mode with INPUT SELECT switch

Adjusting method:

1) Check the component CB signal level (A) to the specified value.

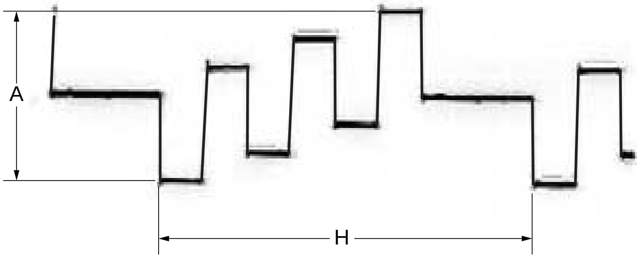


Fig. 5-3-42

38. H Phase Adjustment (VD-032 Board)

Mode	Playback (EXT SYNC ON) (Note)
Signal	Arbitray tape Color bar (VIDEO input)
Measurement Point	CH1: Color bar (The same signal that VIDEO input) CH2: COMPONENT OUT Y terminal (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	2A (Coarse), C9 (Fine)
Specified Value	t = 0 ± 20 nsec

Note: "EXT SYNC" of "VIDEO SET" on the menu setting is ON.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Change the data on page: E, address: C9 and adjust so that the difference in SYNC falling time (t) between CH1 and CH2 satisfies the specified value, and then press the PAUSE button. At this time, check that the data at address: C9 is "40" to "C0".
3) If the data at address: C9 is other than "40" to "C0", change the lower 1 digit (lower 4 bits) of the data on page: E, address: 2A, and press the PAUSE button, then repeat from step 2). (Initial value of data on page: E, address: 2A is 08)
4) Select page: 0, address: 01, and set data: 00.

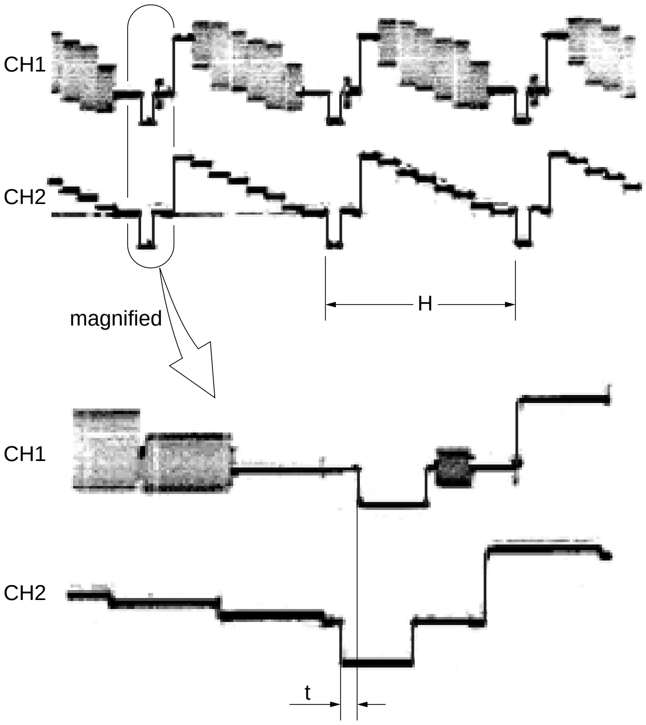


Fig. 5-3-43

39. E-E SC Phase Adjustment (VD-032 Board)

Mode	E-E
Signal	Color bar (VIDEO input) (Note)
Measurement Point	VIDEO OUT terminal (75 Ω terminated)
Measuring Instrument	Vectorscope (SCH measurement mode)
Adjustment Page	E
Adjustment Address	CE
Specified Value	Ø = 0 ± 5°

Note: Set "VIDEO" mode with INPUT SELECT switch

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Adjust the phase synchronization control on the vectorscope so that the burst luminance point is close to the U-axis.
3) Select page: E, address: CE, change tha data and adjust the phase difference (Ø) between the burst and H phase to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 0, address: 01, and set data: 00.

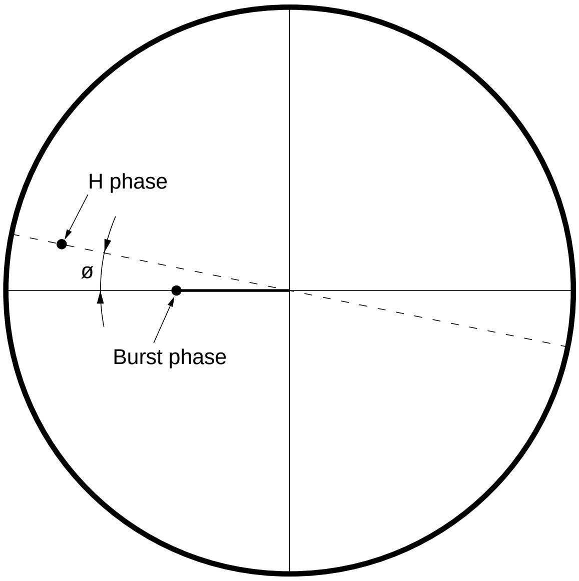


Fig. 5-3-44

40. Playback SC Phase Adjustment (EXT SYNC OFF) (VD-032 Board)

Mode	Playback
Signal	Arbitrary
Measurement Point	VIDEO OUT terminal (75 Ω terminated)
Measuring Instrument	Vectorscope (SCH measurement mode)
Adjustment Page	E
Adjustment Address	CF
Specified Value	Ø = 0 ± 5°

Note: "EXT SYNC" of "VIDEO SET" on the menu setting is OFF.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Adjust the phase synchronization control on the vectorscope so that the burst luminance point is close to the U-axis.
3) Select page: E, address: CF, change tha data and adjust the phase difference (Ø) between the burst and H phase to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 0, address: 01, and set data: 00.

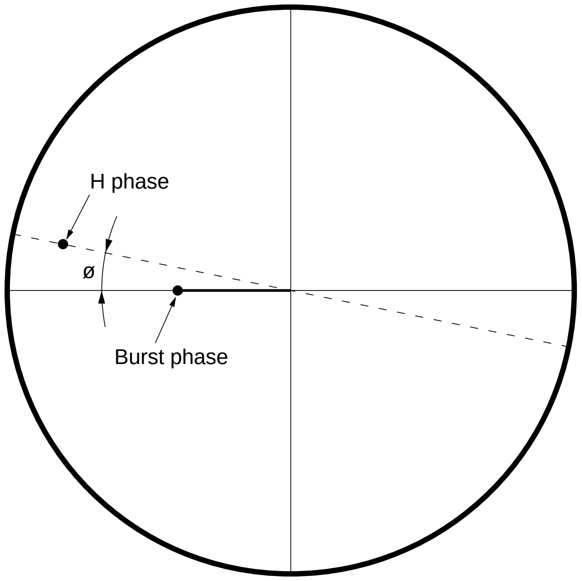


Fig. 5-3-45

41. Playback SC Phase Adjustment (EXT SYNC ON) (VD-032 Board)

Mode	Playback
Signal	Arbitrary Color bar (VIDEO input (REF. IN))
Measurement Point	VIDEO OUT terminal (75 Ω terminated)
Measuring Instrument	Vectorscope (SCH measurement mode)
Adjustment Page	E
Adjustment Address	A7
Specified Value	Ø = 0 ± 5°

Note: "EXT SYNC" of "VIDEO SET" on the menu setting is ON.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Adjust the phase synchronization control on the vectorscope so that the burst luminance point is close to the U-axis.
3) Select page: E, address: A7, change tha data and adjust the phase difference (Ø) between the burst and H phase to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 0, address: 01, and set data: 00.

3-5. LCD SYSTEM ADJUSTMENTS

Note 1: The back light (fluorescent tube) is driven by high voltage AC power supply. Therefore, do not touch the back light holder to avoid electrical shock.
Note 2: When replacing the LCD unit, be careful to prevent damages caused by static electricity.
Note 3: Adjust the LCD BRIGHT and LCD COLOR to the center on menu display.

[Adjusting connector]
Most of the measuring points for adjusting the LCD are concentrated in the CN1504 of VD-032 board.
The following table shows the Pin No. and signal name of the CN1504.

Pin No.	Signal Name
1	N. C.
2	GND
3	PANEL_COM
4	HSY
5	VG

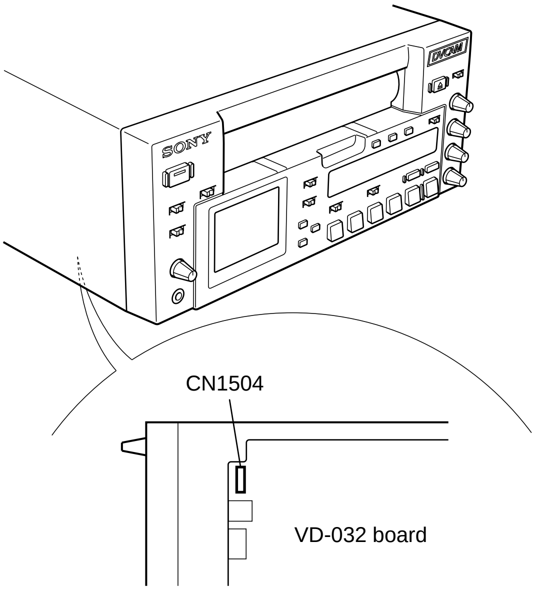


Fig. 5-3-46

1. VCO Adjustment (PD-170 Board)

Mode	E-E
Signal	Arbitrary
Measurement Point	Pin ④ of CN1504 on VD-032 board (HSY)
Measuring Instrument	Frequency counter
Adjustment Page	E
Adjustment Address	87 (NTSC) 8C (PAL)
Specified Value	f = 15734 ± 30 Hz (NTSC) f = 15745 ± 30 Hz (PAL)

Adjusting method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 60, and press the PAUSE button of the adjustment remote commander.
3) Select page: 3, address: 22, set data: 03, and press the PAUSE button.
4) Select page: E, address: 87 (NTSC) or 8C (PAL), change the data and adjust the VCO frequency (f) to the specified value.
5) Press the PAUSE button of the adjustment remote commander.
6) Select page: 3, address: 22, set data: 00, and press the PAUSE button.
7) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
8) Select page: 0, address: 01, and set data: 00.

2. D Range Adjustment (PD-170 Board)

Mode	E-E
Signal	Arbitrary
Measurement Point	Pin ⑤ of CN1504 on VD-032 board (VG) External trigger: Pin ③ of CN1504 on VD-032 board (PANEL_COM)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	85
Specified Value	A = 3.62 ± 0.05 Vp-p

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 60, and press the PAUSE button of the adjustment remote commander.
3) Select page: 3, address: 22, set data: 02, and press the PAUSE button.
4) Select page: E, address: 85, change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value.
5) Press the PAUSE button of the adjustment remote commander.
6) Select page: 3, address: 22, set data: 00, and press the PAUSE button.
7) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
8) Select page: 0, address: 01, and set data: 00.

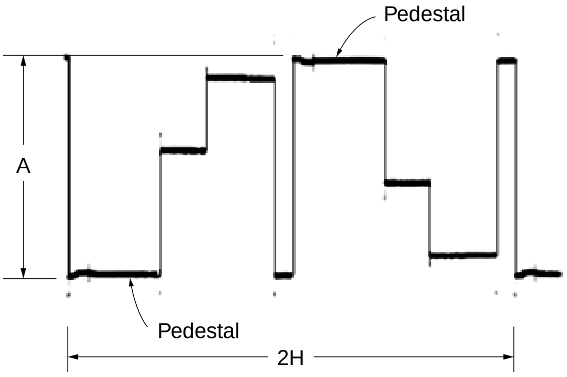


Fig. 5-3-47

3. Bright Adjustment (PD-170 Board)

Mode	E-E
Signal	Arbitrary
Measurement Point	Pin ⑤ of CN1504 on VD-032 board (VG) External trigger: Pin ③ of CN1504 on VD-032 board (PANEL_COM)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	80
Specified Value	A = 2.17 ± 0.08 Vp-p

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 60, and press the PAUSE button of the adjustment remote commander.
3) Select page: 3, address: 22, set data: 02, and press the PAUSE button.
4) Select page: 9, address: 0E, and set data: 40.
5) Select page: E, address: 80, change the data and set the voltage (A) between the pedestal and Gamma 1 limiter level to the specified value.
6) Press the PAUSE button of the adjustment remote commander.
7) Select page: 9, address: 0E, and set data: 00.
8) Select page: 3, address: 22, set data: 00, and press the PAUSE button.
9) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
10) Select page: 0, address: 01, and set data: 00.

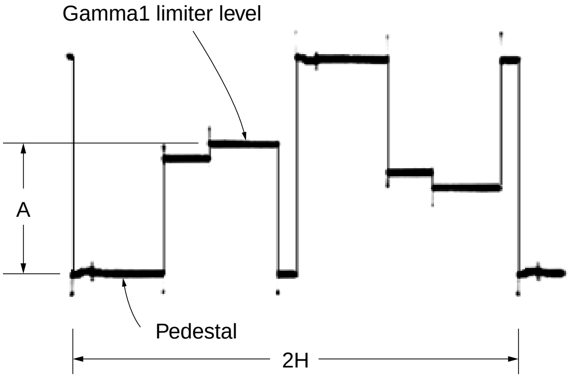


Fig. 5-3-48

4. Contrast Adjustment (PD-170 Board)

Mode	E-E
Signal	Arbitrary
Measurement Point	Pin ⑤ of CN1504 on VD-032 board (VG) External trigger: Pin ③ of CN1504 on VD-032 board (PANEL_COM)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	84
Specified Value	A = 3.31 ± 0.07 Vp-p

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 60, and press the PAUSE button of the adjustment remote commander.
3) Select page: 3, address: 22, set data: 02, and press the PAUSE button.
4) Select page: E, address: 84, change the data and set the voltage (A) between the pedestal and 3 steps peak to the specified value.
5) Press the PAUSE button of the adjustment remote commander.
6) Select page: 3, address: 22, set data: 00, and press the PAUSE button.
7) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
8) Select page: 0, address: 01, and set data: 00.

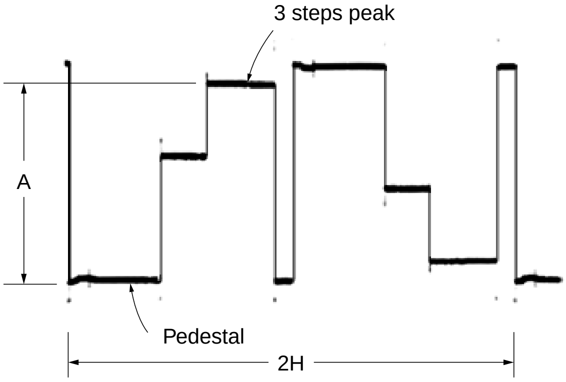


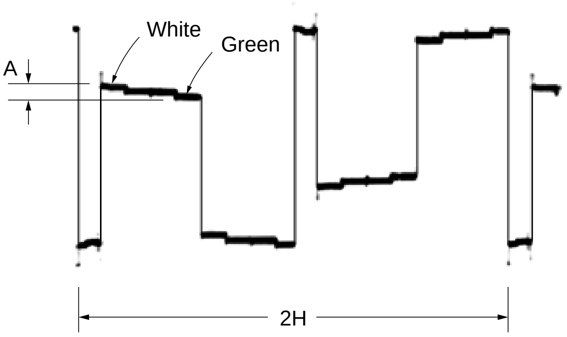
Fig. 5-3-49

5. Color Adjustment (PD-170 Board)

Mode	E-E
Signal	Arbitrary
Measurement Point	Pin ⑤ of CN1504 on VD-032 board (VG) External trigger: Pin ③ of CN1504 on VD-032 board (PANEL_COM)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	81
Specified Value	A = 200 ± 50 mVp-p

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Select page: E, address: 81, change the data and set the voltage (A) between the white and green to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
6) Select page: 0, address: 01, and set data: 00.



Adjust so that the green level is lower than the white level.

Fig. 5-3-50

6. V-COM Level Adjustment (PD-170 Board)

Mode	E-E
Signal	Arbitray
Measurement Point	Pin ③ of CN1504 on VD-032 board (PANEL_COM)
Measuring Instrument	Oscilloscope
Adjustment Page	E
Adjustment Address	86
Specified Value	A = 6.50 ± 0.05 Vp-p

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 01, and press the PAUSE button of the adjustment remote commander.
3) Select page: E, address: 86, change the data and set the V-COM signal level (A) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
6) Select page: 0, address: 01, and set data: 00.

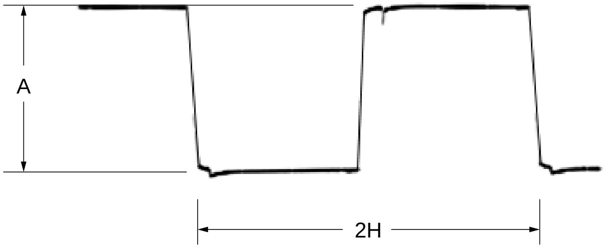


Fig. 5-3-51

7. V-COM Adjustment (PD-170 Board)

Mode	E-E
Signal	Arbitrary
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	E
Adjustment Address	88
Specified Value	The brightness difference between the section-A and section-B is minimum

Note: Perform “Bright Adjustment” and “Contrast Adjustment” before this adjustment.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 60, and press the PAUSE button of the adjustment remote commander.
3) Select page: 3, address: 22, set data: 0F, and press the PAUSE button.
4) Select page: 9, address: 0E, and set data: 27.
5) Select page: E, address: 88, change the data so that brightness of the section A and section B is equal.
6) Press the PAUSE button of the adjustment remote commander.
7) Select page: 9, address: 0E, and set data: 00.
8) Select page: 3, address: 22, set data: 00, and press the PAUSE button.
9) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
10) Select page: 0, address: 01, and set data: 00.

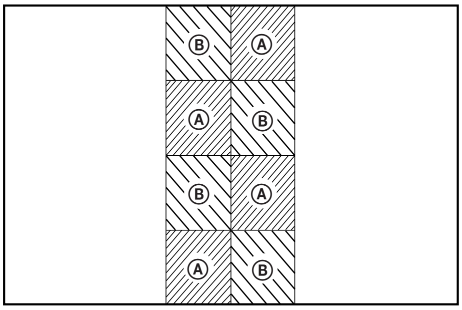


Fig. 5-3-52

8. White Balance Adjustment (PD-170 Board)

Mode	E-E
Signal	Arbitrary
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	E
Adjustment Address	82, 83
Specified Value	LCD screen must not be colored

Note: Check the white balance only when replacing the following parts. If necessary, adjust them.

1. LCD panel
2. Light induction plate
3. IC802

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 0C, set data: 60, and press the PAUSE button of the adjustment remote commander.
3) Select page: 3, address: 22, set data: 0B, and press the PAUSE button.
4) Select page: E, address: 82 and 83, set data to the initial value.
   Note: To write in the non-volatile memory (EEP ROM), press the PAUSE button of the adjustment remote commander each time to set data.

Address	Data
82	95
83	5F

5) Check that the LCD screen is not colored. If colored, select page: E, address: 82 and 83, then change data so that the LCD screen is not colored.
   Note: To write in the non-volatile memory (EEP ROM), press the PAUSE button of the adjustment remote commander each time to set data.
6) Select page: 3, address: 22, set data: 00, and press the PAUSE button.
7) Select page: 3, address: 0C, set data: 00, and press the PAUSE button.
8) Select page: 0, address: 01, and set data: 00.

3-6. AUDIO SYSTEM ADJUSTMENTS

Set the switches and menu to the following positions unless otherwise specified.

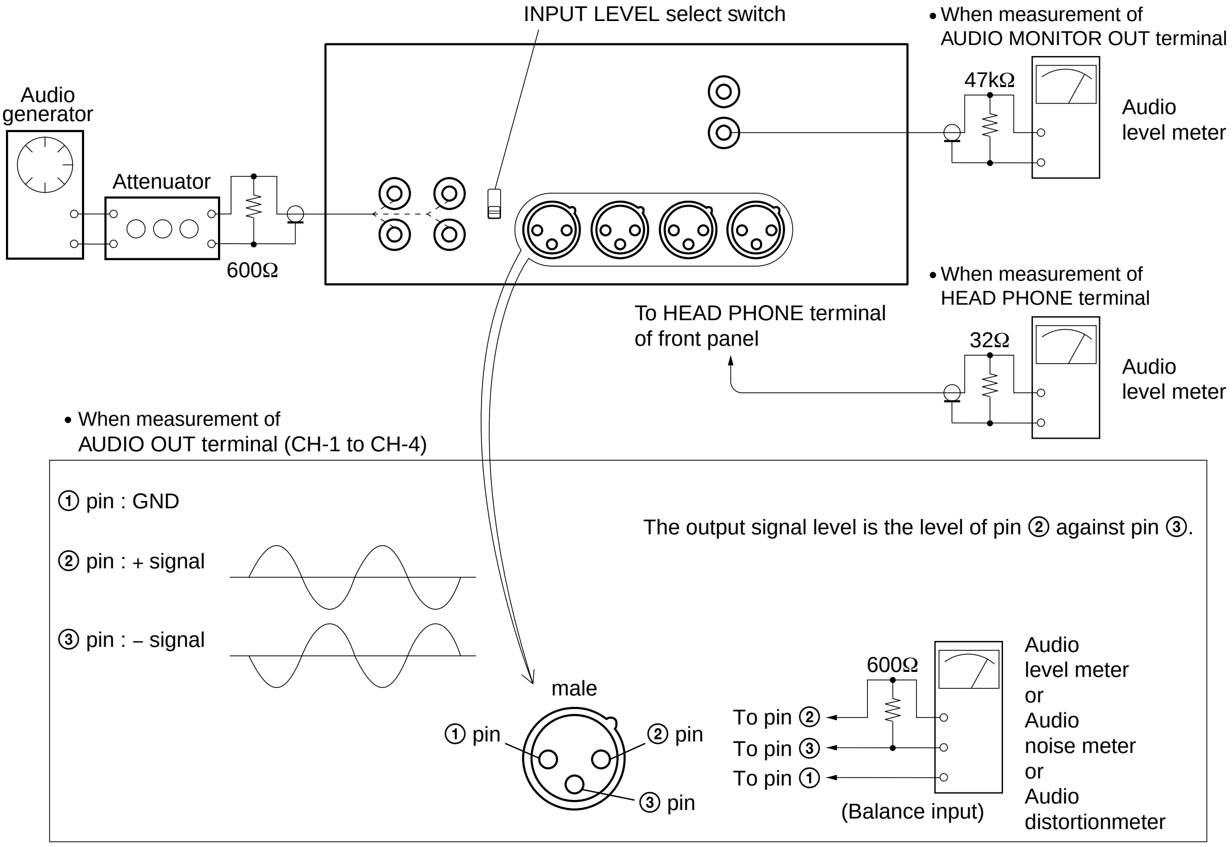
Switch setting

AUDIO INPUT mode select switch (Front panel)	MANU
AUDIO REC LEVEL control knob (Front panel) (CH-1 to CH-4)	CENTER
INPUT LEVEL select switch (Rear panel)	–10
AUDIO MONITOR select switch (Front panel)	CH1/2
CHARACTER DISPLAY (LCD) switch (Front panel)	ON
DISPLAY SELECT switch (Front panel)	AUDIO
INPUT SELECT switch (Front panel)	VIDEO (except DV)

Menu setting (AUDIO SET menu)

AUDIO MODE	FS32K
AUDIO DUB	CH3, 4
JOG AUDIO	ON
REF LEVEL	–20 dB
AGC CH1, 2	SEPARATE
AGC CH3, 4	SEPARATE
LIMITER	OFF

Connection of equipment


INPUT LEVEL select switch
• When measurement of AUDIO MONITOR OUT terminal
47kΩ
Audio level meter
Audio generator
Attenuator
600Ω
• When measurement of HEAD PHONE terminal
To HEAD PHONE terminal of front panel
32Ω
Audio level meter
• When measurement of AUDIO OUT terminal (CH-1 to CH-4)
① pin : GND
② pin : + signal
③ pin : – signal
male
① pin
② pin
③ pin
600Ω
To pin ②
To pin ③
To pin ①
(Balance input)
Audio level meter or Audio noise meter or Audio distortionmeter

The output signal level is the level of pin ② against pin ③.

32Ω : 10 (1-249-393-11) + 22 (1-249-397-11)
600Ω : 270 (1-249-410-11) + 330 (1-249-411-11)
47kΩ : 1-249-437-11

Fig. 5-3-53

1. Audio PAL Data Input (DSR-45P)

(1) Data input in normal case

If the JC-21 board or IC5006 on the JC-21 board was replaced, perform the following data input.

Mode	STOP
Signal	Arbitrary
Adjustment Page	D
Adjustment Address	40 to 4F

Input method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, and input data in the following table.
   Note: To write in the non-volatile memory (EEP ROM), press the PAUSE button of the adjustment remote commander each time to set data.
3) Select page: 0, address: 01, and set data: 00.
4) Press the RESET switch at bottom of the set using a thin and long pin.

Address	Data
40	00
41	18
42	AC
43	65
44	00
45	1A
46	AC
47	65
48	00
49	14
4A	92
4B	50
4C	00
4D	16
4E	92
4F	50

(2) Data setting at audio check

In making an audio check, perform the following data setting. After the audio check finished, perform “data input in normal case” to restore the data.

Mode	STOP
Signal	Arbitrary
Adjustment Page	D
Adjustment Address	40 to 4F

Input method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, and input data in the following table.
   Note: To write in the non-volatile memory (EEP ROM), press the PAUSE button of the adjustment remote commander each time to set data.
3) Select page: 0, address: 01, and set data: 00.
4) Press the RESET switch at bottom of the set using a thin and long pin.

Address	Data
40	00
41	18
42	FF
43	7F
44	00
45	1A
46	FF
47	7F
48	00
49	14
4A	00
4B	40
4C	00
4D	16
4E	00
4F	40

2. Playing Level Check

Mode	PLAY
Signal	Alignment tape: For audio check (NTSC: XH5-3/PAL: XH5-3P)
Measurement Point	AUDIO OUT terminal (CH-1, 2)
Measuring instrument	Audio level meter Oscilloscope
Specified Value	32 kHz mode section: 1 kHz signal must be outputted. 48 kHz mode section: 1 kHz signal level is +22 to +26 dBu. 44.1 kHz mode EMP ON section: 7.35 kHz signal level is +16 to +20 dBu. 44.1 kHz mode EMP OFF section: 7.35 kHz signal level is +22 to +26 dBu.

Note: 0 dBu = 0.775 Vrms/balance

Checking method:
1) Check that the play signal level satisfies the specified value.
2) Check with the oscilloscope that no clip is found in the output waveform.

3. E-E Level Check

(1) -10dB Check

Mode	STOP
Signal	Audio: 1 kHz, –10 dBs signal AUDIO IN terminal (CH-1 to 4)
Measurement Point	AUDIO OUT terminal (CH-1 to 4)
	AUDIO MONITOR OUT terminal
Measuring instrument	Audio level meter
Specified Value	At max. REC LEVEL: +13 to +19 dBu At min. REC LEVEL: No signal is present. At –20 dB displayed on FINE screen with rotating the AUDIO REC LEVEL control knob: Control knob position ±30 deg. of center AUDIO OUT terminal +2 to +6 dBu AUDIO MONITOR OUT terminal –25 to –19 dBs

Note 1: 0 dBu = 0.775 Vrms/balance
Note 2: 0 dBs = 0.775 Vrms

Switch setting
INPUT LEVEL select switch .... –10

Menu setting (AUDIO SET menu)
AUDIO MODE FS32K

Checking method:
1) Enter 1 kHz, –10 dBs signal to the AUDIO IN terminal (CH-1).
2) Check that the output of AUDIO OUT terminal (CH-1) satisfies the specified value, when the AUDIO REC LEVEL control knob (CH-1) on the front panel is in the maximum position.
3) Check that the output of AUDIO OUT terminal (CH-1) satisfies the specified value, when the AUDIO REC LEVEL control knob (CH-1) is in the minimum position.
4) Press the “FINE” button on the front panel to display the audio level of LCD monitor on the FINE screen.
5) Adjust the AUDIO REC LEVEL control knob (CH-1) so that the FINE screen on CH-1 displays “–20”.
   Note 3: Unless otherwise specified, do not rotate the AUDIO REC LEVEL control knob, as other checking items use this setting (rotation angle) of the AUDIO REC LEVEL control knob.
6) Check at this time that the control knob position, AUDIO OUT terminal (CH-1) output, and AUDIO MONITOR OUT terminal output satisfy the specified values. (Audio signal is input only to CH-1)
7) For the CH-2 to 4, make a checking in the same manner.
   When CH-3 or CH-4 is checked, set the AUDIO MONITOR select switch to “CH3/4”.

(2) –2dB Check

Mode	STOP
Signal	Audio: 1 kHz, –2 dBs signal AUDIO IN terminal (CH-1 to 4)
Measurement Point	AUDIO OUT terminal (CH-1 to 4)
Measuring instrument	Audio level meter
Specified Value	+2 to +6 dBu

Note 1: 0 dBu = 0.775 Vrms/balance
Note 2: 0 dBs = 0.775 Vrms

Switch setting
INPUT LEVEL select switch .... –2
AUDIO REC LEVEL control knob (CH-1 to 4)
.... The position at –10 dB Check of E-E Level Check

Menu setting (AUDIO SET menu)
AUDIO MODE FS32K

Checking method:
1) Enter 1 kHz, –2 dBs signal to the AUDIO IN terminal (CH-1).
2) Check at this time that the output of AUDIO OUT terminal (CH-1) satisfies the specified value.
3) For the CH-2 to 4, make a checking in the same manner.

(3) +4dB Check

Mode	STOP
Signal	Audio: 1 kHz, +4 dBs signal AUDIO IN terminal (CH-1 to 4)
Measurement Point	AUDIO OUT terminal (CH-1 to 4)
Measuring instrument	Audio level meter
Specified Value	+2 to +6 dBu

Note 1: 0 dBu = 0.775 Vrms/balance
Note 2: 0 dBs = 0.775 Vrms

Switch setting
INPUT LEVEL select switch .... +4
AUDIO REC LEVEL control knob (CH-1 to 4)
.... The position at –10 dB Check of E-E Level Check

Menu setting (AUDIO SET menu)
AUDIO MODE FS32K

Checking method:
1) Enter 1 kHz, +4 dBs signal to the AUDIO IN terminal (CH-1).
2) Check at this time that the output of AUDIO OUT terminal (CH-1) satisfies the specified value.
3) For the CH-2 to 4, make a checking in the same manner.

4. Frequency Characteristic Check

(1) 4CH mode Check

Mode	STOP
Signal	Audio: 1 kHz, –10 dBs signal 10 Hz, –10 dBs signal 14 kHz, –10 dBs signal AUDIO IN terminal (CH-1 to 4)
Measurement Point	AUDIO OUT terminal (CH-1 to 4)
Measuring instrument	Audio level meter
Specified Value	Difference in output level: A = –2.5 to +1.5 dB B = –1.5 to +1.5 dB

Note 1: 0 dBu = 0.775 Vrms/balance
Note 2: 0 dBs = 0.775 Vrms

Switch setting
INPUT LEVEL select switch .... –10
AUDIO REC LEVEL control knob (CH-1 to 4)
.... The position at –10 dB Check of E-E Level Check

Menu setting (AUDIO SET menu)
AUDIO MODE FS32K

Checking method:
1) Enter 1 kHz, –10 dBs signal to the AUDIO IN terminal (CH-1).
2) Measure the output of AUDIO OUT terminal (CH-1) at this time, and assume it to be “a” (dBu).
3) Enter 10 Hz, –10 dBs signal to the AUDIO IN terminal (CH-1).
4) Measure the output of AUDIO OUT terminal (CH-1) at this time, and assume it to be “b” (dBu).
5) Enter 14 kHz, –10 dBs signal to the AUDIO IN terminal (CH-1).
6) Measure the output of AUDIO OUT terminal (CH-1) at this time, and assume it to be “c” (dBu).
7) Calculate the difference A (dB) between output levels “b” (dBu) and “a” (dBu) to check that it satisfies the specified value.
   A (dB) = b (dBu) – a (dBu)
8) Calculate the difference B (dB) between output levels “c” (dBu) and “a” (dBu) to check that it satisfies the specified value.
   B (dB) = c (dBu) – a (dBu)
9) For the CH-2 to 4, make a checking in the same manner.

(2) 2CH mode Check

Mode	STOP
Signal	Audio: 1 kHz, –10 dBs signal 20 kHz, –10 dBs signal AUDIO IN terminal (CH-1, 2)
Measurement Point	AUDIO OUT terminal (CH-1, 2)
Measuring instrument	Audio level meter
Specified Value	Difference in output level: A = –1.5 to +1.5 dB

Note 1: 0 dBu = 0.775 Vrms/balance
Note 2: 0 dBs = 0.775 Vrms

Switch setting
INPUT LEVEL select switch .... –10
AUDIO REC LEVEL control knob (CH-1, 2)
.... The position at –10 dB Check of E-E Level Check

Menu setting (AUDIO SET menu)
AUDIO MODE FS48K

Checking method:

1) Enter 1 kHz, –10 dBs signal to the AUDIO IN terminal (CH-1).
2) Measure the output of AUDIO OUT terminal (CH-1) at this time, and assume it to be “a” (dBu).
3) Enter 20 kHz, –10 dBs signal to the AUDIO IN terminal (CH-1).
4) Measure the output of AUDIO OUT terminal (CH-1) at this time, and assume it to be “b” (dBu).
5) Calculate the difference A (dB) between output levels “b” (dBu) and “a” (dBu) to check that it satisfies the specified value.
   A (dB) = b (dBu) – a (dBu)
6) For the CH-2, make a checking in the same manner.

5. Distortion Check

Mode	STOP
Signal	Audio: 1 kHz, +6 dBs signal AUDIO IN terminal (CH-1 to 4)
Measurement Point	AUDIO OUT terminal (CH-1 to 4)
Measuring instrument	Audio distortion meter
Specified Value	0.025% (–72 dB) or less

Note: 0 dBs = 0.775 Vrms

Switch setting
INPUT LEVEL select switch .... –10
AUDIO REC LEVEL control knob (CH-1 to 4)
.... The position at –10 dB Check of E-E Level Check

Menu setting (AUDIO SET menu)
AUDIO MODE FS32K

Checking method:

1) Enter 1 kHz, +6 dBs signal to the AUDIO IN terminal (CH-1).
2) Measure the distortion of the AUDIO OUT terminal (CH-1) at this time to check that it satisfies the specified value.
3) For the CH-2 to 4, make a checking in the same manner.

6. HEAD PHONE Check

Mode	STOP
Signal	Audio: 1 kHz, –10 dBs signal AUDIO IN terminal (CH-1, 2)
Measurement Point	HEAD PHONE terminal (L, R)
Measuring instrument	Audio level meter
Specified Value	–21 to –15 dBV

Note 1: 0 dBs = 0.775 Vrms
Note 2: 0 dBV = 1 Vrms

Switch setting
INPUT LEVEL select switch .... –10
AUDIO REC LEVEL control knob (CH-1 to 4)
.... The position at –10 dB Check of E-E Level Check

Menu setting (AUDIO SET menu)
AUDIO MODE FS32K

Checking method:
1) Enter 1 kHz, –10 dBs signal to the AUDIO IN terminal (CH-1).
2) Set the HEADPHONE LEVEL control knob to the maximum.
3) Measure the output of HEADPHONE terminal (L) at this time to check that it satisfies the specified value.
4) Connect a headphone to the HEADPHONE terminal, and rotate the HEADPHONE LEVEL control knob from maximum to minimum.
5) Check at this time that the sound on L channel varies smoothly.
6) For the R channel, make a checking in the same manner.

7. E-E Maximum Input Check

(1) –10dB Check

Mode	STOP
Signal	Audio: 1 kHz, +18 dBs signal AUDIO IN terminal (CH-1 to 4)
Measurement Point	Pin ② and ③ of AUDIO OUT terminal (CH-1 to 4)
Measuring instrument	Oscilloscope
Specified Value	No clip is found in the output waveform.

Note: 0 dBs = 0.775 Vrms

Switch setting
INPUT LEVEL select switch .... –10

Menu setting (AUDIO SET menu)
AUDIO MODE FS32K

Checking method:
1) Enter 1 kHz, +18 dBs signal to the AUDIO IN terminal (CH-1).
2) Measure the output waveform at ② pin and ③ pin of the AUDIO OUT terminal (CH-1), when the AUDIO REC LEVEL control knob on the front panel is rotated toward rather throttle side.
3) Check at this time that no clip is found in the output waveform.
4) For the CH-2 to 4, make a checking in the same manner.

(2) +4dB Check

Mode	STOP
Signal	Audio: 1 kHz, +30 dBs signal AUDIO IN terminal (CH-1 to 4)
Measurement Point	Pin ② and ③ of AUDIO OUT terminal (CH-1 to 4)
Measuring instrument	Oscilloscope
Specified Value	No clip is found in the output waveform.

Note: 0 dBs = 0.775 Vrms

Switch setting
INPUT LEVEL select switch .... +4

Menu setting (AUDIO SET menu)
AUDIO MODE FS32K

Checking method:
1) Enter 1 kHz, +30 dBs signal to the AUDIO IN terminal (CH-1).
2) Measure the output waveform at ② pin and ③ pin of the AUDIO OUT terminal (CH-1), when the AUDIO REC LEVEL control knob on the front panel is rotated toward rather throttle side.
3) Check at this time that no clip is found in the output waveform.
4) For the CH-2 to 4, make a checking in the same manner.

8. E-E AUTO Check

Mode	STOP
Signal	Audio: 1 kHz, –10 dBs signal AUDIO IN terminal (CH-1 to 4)
Measurement Point	AUDIO OUT terminal (CH-1 to 4)
Measuring instrument	Audio level meter
Specified Value	+1 to +7 dBu

Note 1: 0 dBu = 0.775 Vrms/balance
Note 2: 0 dBs = 0.775 Vrms

Switch setting
INPUT LEVEL select switch .... –10
AUDIO INPUT mode select switch .... AUTO

Menu setting (AUDIO SET menu)
AUDIO MODE FS32K

Checking method:
1) Enter 1 kHz, –10 dBs signal to the AUDIO IN terminal (CH-1).
2) Check that the output of AUDIO OUT terminal (CH-1) satisfies the specified value, when the AUDIO REC LEVEL control knob on the front panel is in minimum position.
3) For the CH-2 to 4, make a checking in the same manner.

9. E-E Noise Level Check

(1) 4CH mode Check

Mode	STOP
Signal	Audio: No signal Nothing is connected to the AUDIO IN terminal (CH-1 to 4)
Measurement Point	AUDIO OUT terminal (CH-1 to 4)
Measuring instrument	Audio noise meter
Specified Value	–65 dBu or less

Note: 0 dBu = 0.775 Vrms/balance

Switch setting
INPUT LEVEL select switch .... –10
AUDIO INPUT mode select switch .... AUTO

Menu setting (AUDIO SET menu)
AUDIO MODE FS32K

Checking method:
1) Connect the audio noise meter to the AUDIO OUT terminal (CH-1).
2) Measure the noise level at this time to check that it satisfies the specified value.
3) For the CH-2 to 4, make a checking in the same manner.

(2) 2CH mode Check

Mode	STOP
Signal	Audio: No signal Nothing is connected to the AUDIO IN terminal (CH-1, 2)
Measurement Point	AUDIO OUT terminal (CH-1, 2)
Measuring instrument	Audio noise meter (A-weight filter ON)
Specified Value	–65 dBu or less

Note: 0 dBu = 0.775 Vrms/balance

Switch setting
INPUT LEVEL select switch .... –10
AUDIO INPUT mode select switch .... AUTO

Menu setting (AUDIO SET menu)
AUDIO MODE FS48K

Checking method:
1) Connect the audio noise meter to the AUDIO OUT terminal (CH-1), and turn on the A-weight filter.
2) Measure the noise level at this time to check that it satisfies the specified value.
3) For the CH-2, make a checking in the same manner.

10. E-E AUTO Maximum Input Check

Mode	STOP
Signal	Audio: 1 kHz, +18 dBs signal AUDIO IN terminal (CH-1 to 4)
Measurement Point	AUDIO OUT terminal (CH-1 to 4)
Measuring instrument	Audio level meter Oscilloscope
Specified Value	+18 to +22 dBu

Note 1: 0 dBu = 0.775 Vrms/balance
Note 2: 0 dBs = 0.775 Vrms

Switch setting
INPUT LEVEL select switch .... –10

Menu setting (AUDIO SET menu)
AUDIO MODE FS32K

Checking method:
1) Enter 1 kHz, +18 dBs signal to the AUDIO IN terminal (CH-1).
2) Check that the output of AUDIO OUT terminal (CH-1) satisfies the specified value.
3) Using an oscilloscope, measure the output waveform at the ② pin and ③ pin of the AUDIO OUT terminal (CH-1).
4) Check at this time that no clip is found in the output waveform.
5) For the CH-2 to 4, make a checking in the same manner.

3-7. TIME CODE SYSTEM ADJUSTMENTS

Set the switches to the following positions unless otherwise specified.

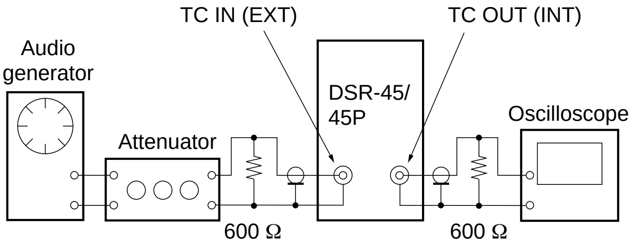
INPUT SELECT switch .... VIDEO (except DV)
Cassette tape .... None

1. Analog Through (E-E) Level Check

Mode	STOP (no cassette tape) Press the REC button.
Signal	TC IN (EXT) terminal: 6 kHz sine wave 3.0 Vp-p
Measurement point	TC OUT (INT) terminal (600 Ω load)
Measuring instrument	Oscilloscope
Specified value	2.0 to 4.0 Vp-p

Menu setting (TC/UB SET menu)
TC/UB IN .... TC & UB EXT

Connection of equipment



600 Ω: 270 (1-249-410-11) +330 (1-249-411-11)

Checking method:
1) Check that the TC output signal level satisfies the specified value.
2) Check with the oscilloscope that no clip is found in the output waveform.

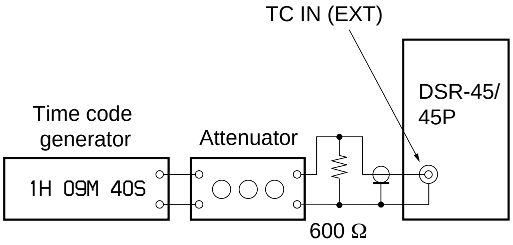
2. Time Code Reading Check

Mode	STOP (no cassette tape) Press the REC button.
Signal	TC IN (EXT) terminal: 0.25 Vp-p time code signal
Measurement point	Time counter on the front panel
Measuring instrument	Counter value on the display
Specified value	The value indicated on the time code generator must be same as the counter value on the front panel.

Switch setting
Set the counter switch on the front panel to “TC”.

Menu setting (TC/UB SET menu)
TC/UB IN .... TC & UB EXT

Connection of equipment



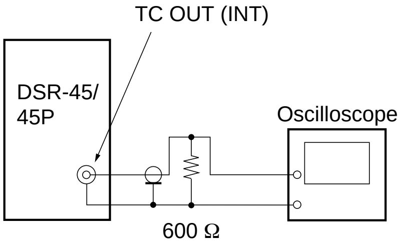
600 Ω: 270 (1-249-410-11) +330 (1-249-411-11)

Checking method:
1) Enter 0.25 Vp-p time code signal obtained by attenuating the output of time code generator (such as NTSC: BVG-1600/PAL: BVG-1600P) to the TC IN (EXT) terminal.
2) Check that the value indicated on the time code generator is same as the counter value on the front panel.

3. Internal Time Code Output Waveform Check

Mode	PLAY
Signal	Time code recorded tape
Measurement point	TC OUT (INT) terminal (600 Ω load)
Measuring instrument	Oscilloscope
Specified value	A = 2.0 to 3.0 Vp-p (NTSC/PAL) T1 = 20 to 30 μsec (NTSC) T1 = 40 to 65 μsec (PAL) T2 = 20 to 30 μsec (NTSC) T2 = 40 to 65 μsec (PAL)

Connection of equipment



600 Ω: 270 (1-249-410-11) +330 (1-249-411-11)

Checking method:

1) Check that the TC output signal level (A) satisfies the specified value.
2) Check that the TC output signal rising time (T1) satisfies the specified value.
3) Check that the TC output signal falling time (T2) satisfies the specified value.

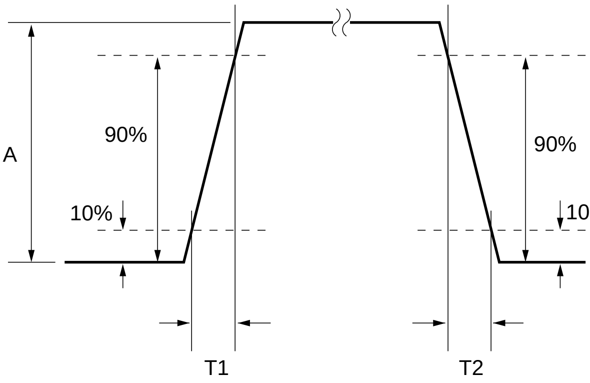


Fig. 5-3-55

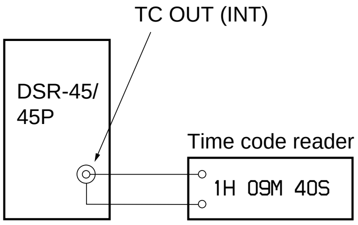
4. Internal Time Code Output Check

Mode	PLAY
Signal	Time code recorded tape
Measurement point	Counter value of timer code reader
Measuring instrument	
Specified value	The counter value on the front panel must be same as the value indicated on the time code reader.

Switch setting

Set the counter switch on the front panel to “TC”.

Connection of equipment

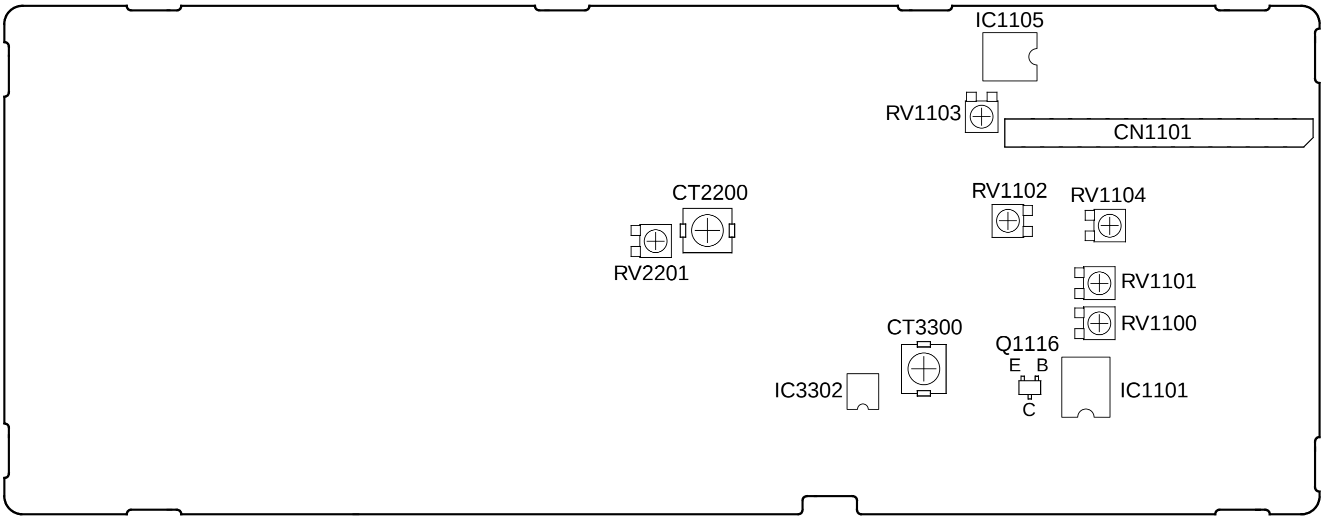


Checking method:

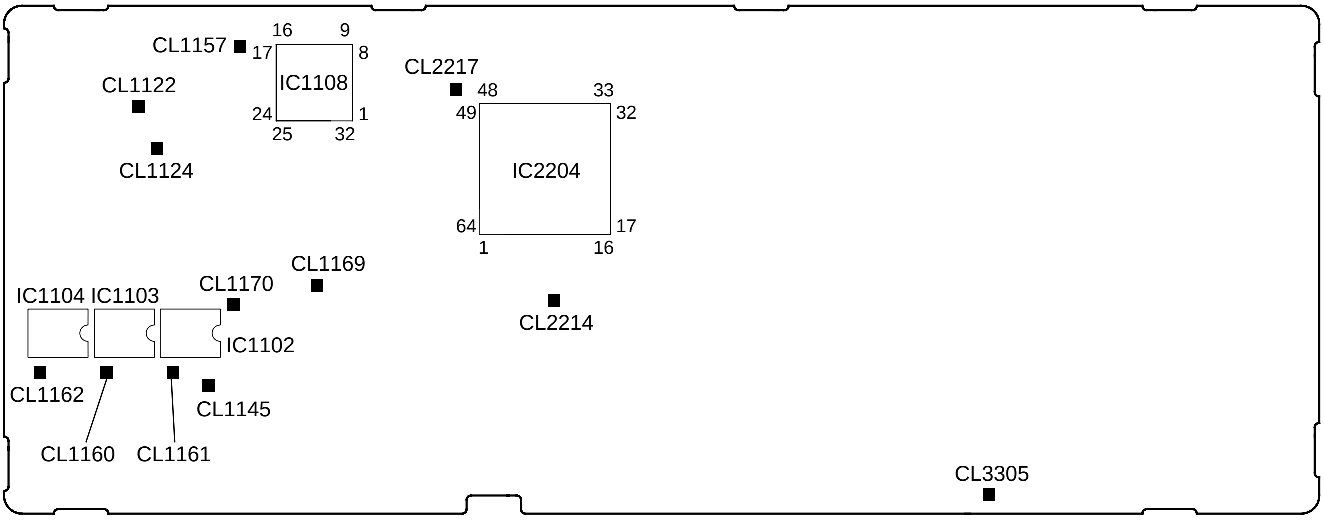
1) Connect the time code reader (such as BVG-1500) to the TC OUT (INT) terminal.
2) Check that the counter value on the front panel is same as the value indicated on the time code reader.

3-8. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

JC-21 BOARD (SIDE A)


IC1105
RV1103
CN1101
CT2200
RV1102
RV1104
RV2201
RV1101
RV1100
CT3300
Q1116
E
B
C
IC3302
IC1101

JC-21 BOARD (SIDE B)


CL1157
16
9
17
8
IC1108
24
1
25
32
CL1122
CL1124
CL2217
48
33
49
32
IC2204
64
17
1
16
CL1169
CL1170
IC1104
IC1103
IC1102
CL2214
CL1162
CL1145
CL1160
CL1161
CL3305

SECTION 6
REPAIR PARTS LIST

6-1. EXPLODED VIEWS

NOTE:

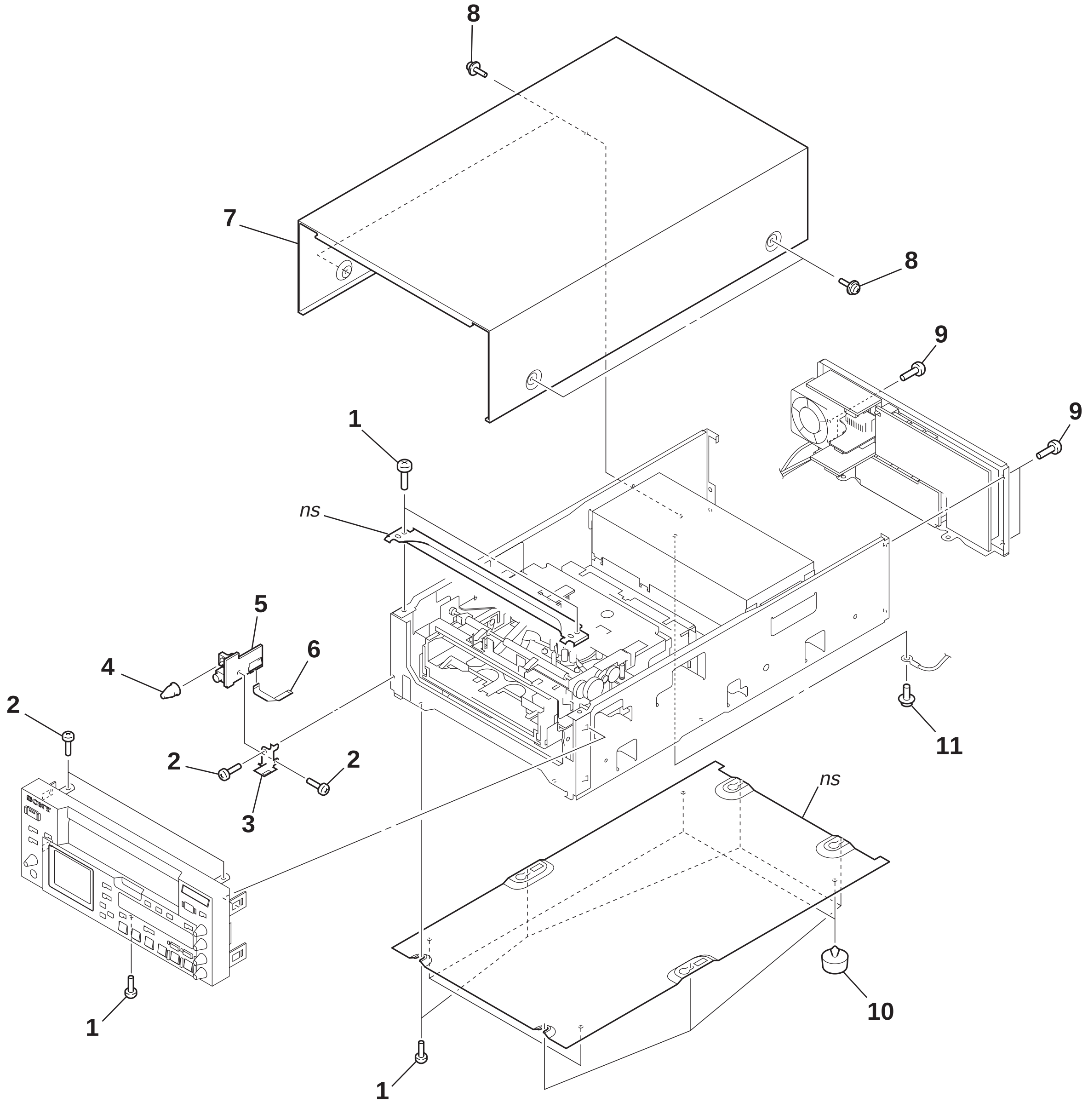
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories are given in the last of the electrical parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

6-1-1. OVERALL ASSEMBLY

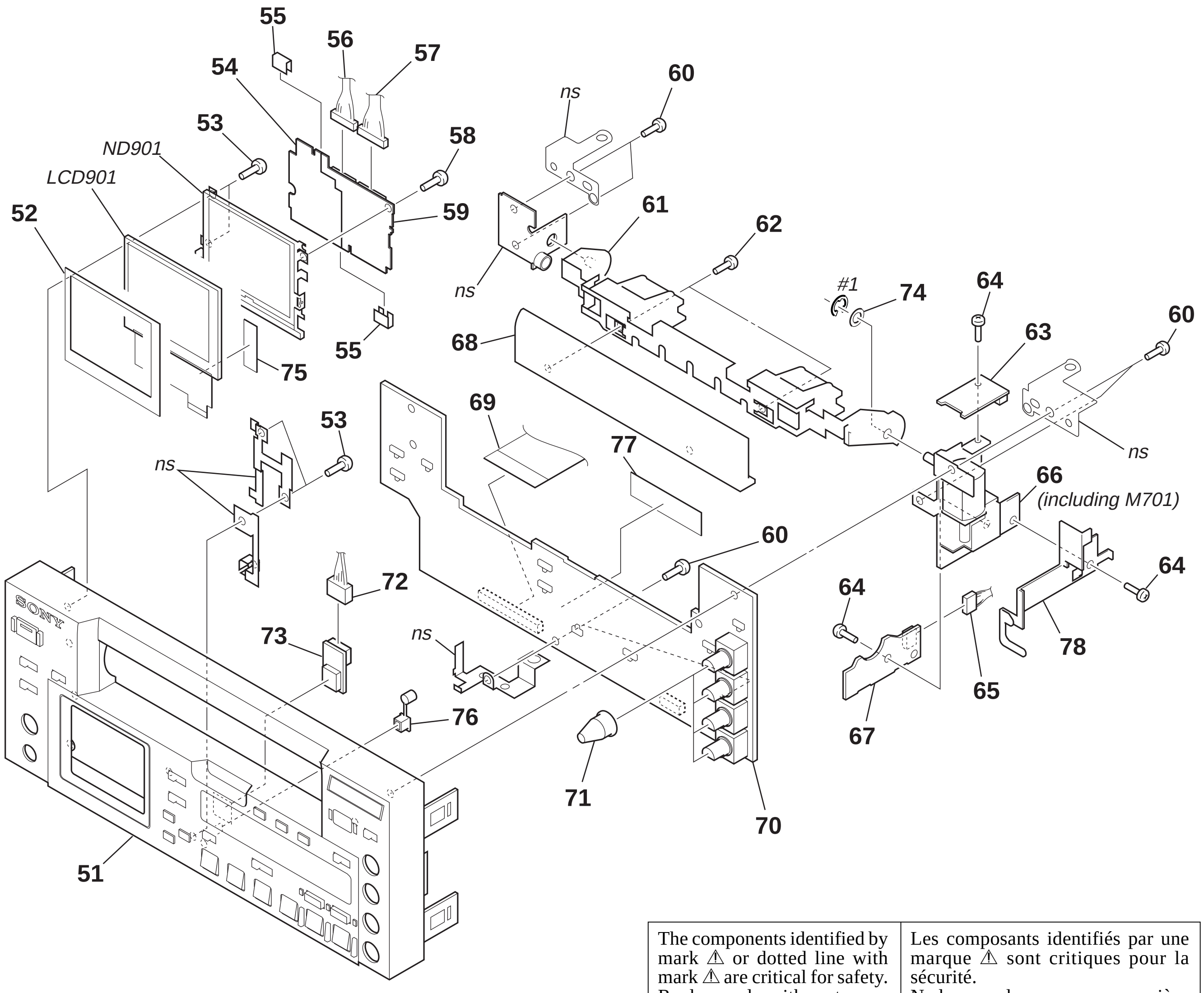
ns: not supplied



Ref. No.	Part No.	Description
1	3-970-608-01	SUMITITE (B3), +BV
2	3-732-817-01	SCREW (2X4.5), TAPPING
3	3-072-975-01	HP BRACKET
4	3-072-964-01	KNOB, HP
5	A-7078-200-A	HP-135 BOARD, COMPLETE
6	1-823-914-11	CABLE, FLEXIBLE FLAT (FVH-006)
* 7	3-987-158-01	CASE, UPPER
8	4-886-821-01	SCREW, M3 CASE
9	3-970-608-41	SUMITITE (B3), +BV
10	3-987-171-01	FOOT (FF-004)
11	3-975-291-01	SCREW (4X6)

6-1-2. FRONT PANEL ASSEMBLY

ns: not supplied

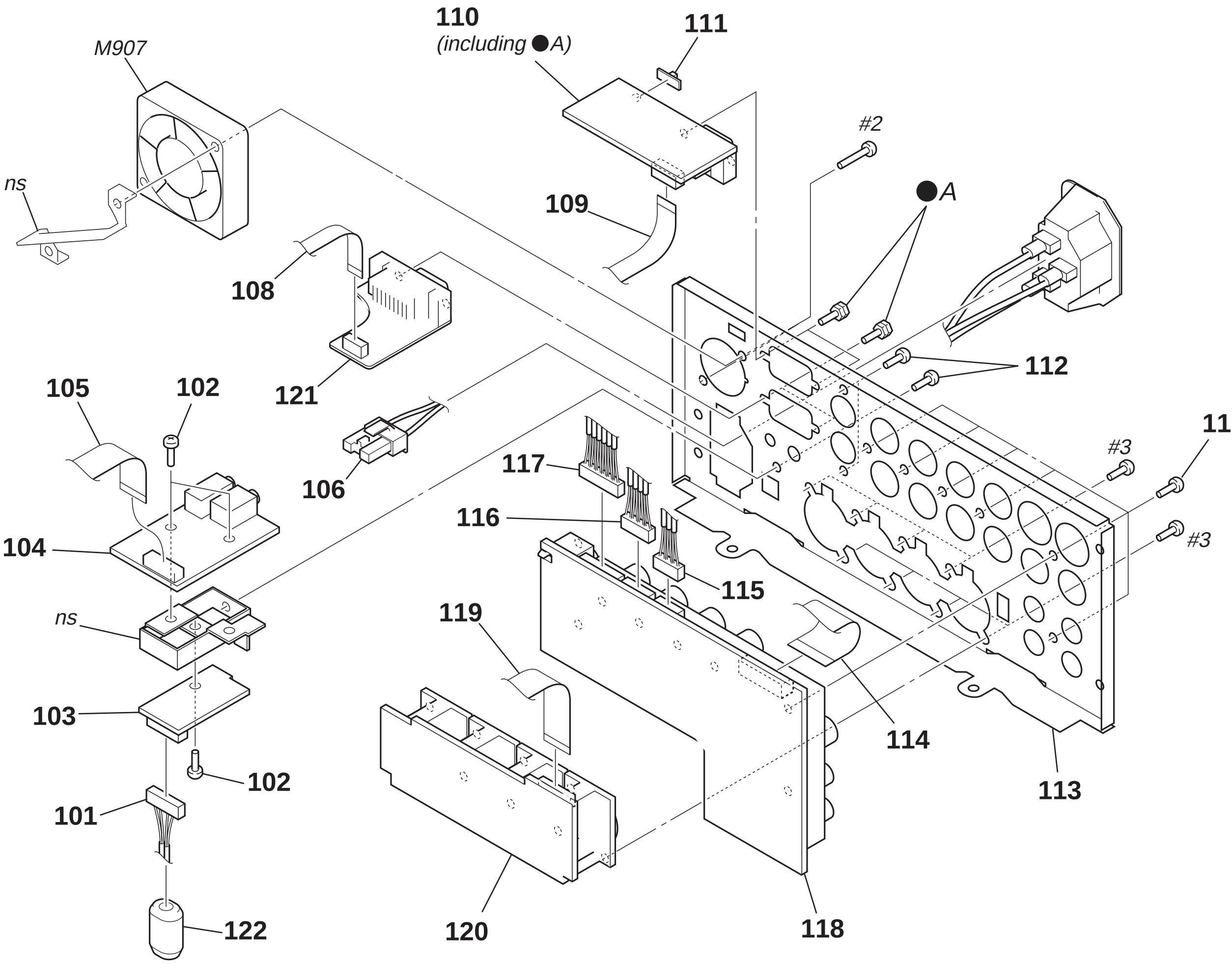


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description
51	X-3952-199-1	PANEL ASSY, FRONT (DSR-45)
51	X-3952-206-1	FRONT PANEL ASSY (DSR-45P)
52	3-075-337-01	CUSHION (LIGHT INTERCEPTION)
53	3-914-366-01	SCREW (DIA. 1.7X4), PRECISION
⚠54	1-418-879-21	TRANSFORMER UNIT, INVERTER
* 55	3-051-232-01	CLIP, PCB
56	1-961-665-11	HARNESS (PV-133)
57	1-961-666-11	HARNESS (PV-134)
58	3-989-735-51	SCREW (M1.7), LOCK ACE, P2
59	A-7078-205-A	PD-170 BOARD, COMPLETE
60	3-945-884-11	SCREW (2X6)
61	X-3952-203-1	DOOR ASSY, PLATE
62	3-948-339-21	SCREW, TAPPING
63	A-7078-207-A	FM-037 BOARD, COMPLETE
64	3-732-817-01	SCREW (2X4.5), TAPPING
65	1-961-673-11	HARNESS (FF-205)
66	A-7095-057-A	DOOR BLOCK ASSY, ROTARY (including M701)
67	A-7078-226-A	FC-087 BOARD, COMPLETE
68	3-072-989-01	DOOR
69	1-823-913-12	CABLE, FLEXIBLE FLAT (FVF-009)
70	A-7078-201-A	FR-183 BOARD, COMPLETE
71	3-072-963-01	KNOB, VOL
72	1-961-684-11	HARNESS (VD-060)
73	A-7078-206-A	DL-062 BOARD, COMPLETE
74	3-071-440-21	WASHER 3.5
75	3-060-295-01	SHEET (BL)
76	3-072-940-01	SPACER (IR)
77	3-075-338-11	TAPE (FP)
78	3-074-980-01	CLAMP (FC), HARNESS
LCD901	1-803-857-21	INDICATOR MODULE LIQUID CRYST
⚠ND901	1-517-878-31	TUBE, FLUORESCENT,COLD CATHODE

6-1-3. REAR PANEL ASSEMBLY

ns: not supplied



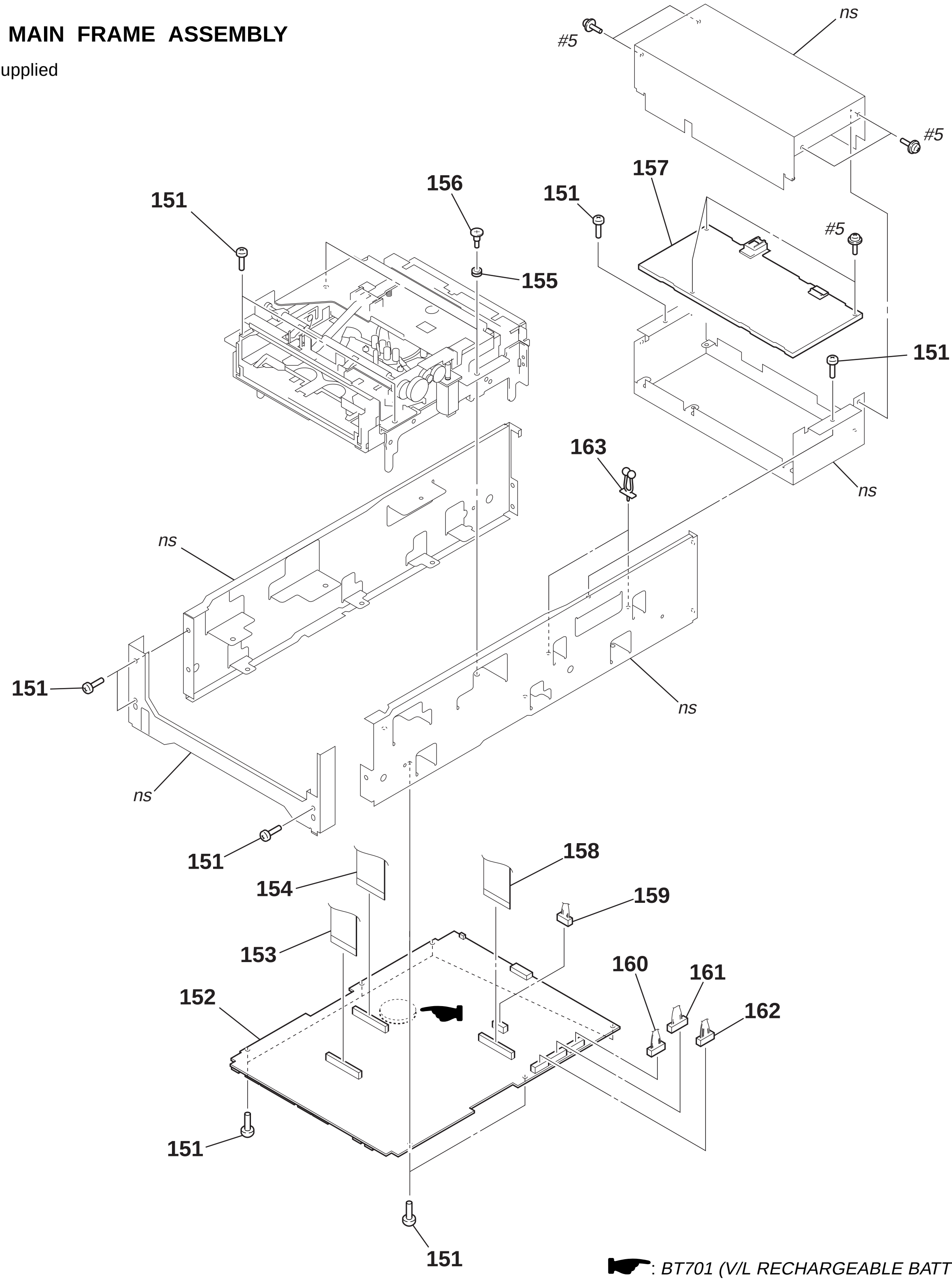
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description
101	1-961-667-11	HARNESS (JD-053)
102	3-732-817-01	SCREW (2X4.5), TAPPING
103	A-7078-221-A	DV-032 BOARD, COMPLETE
104	A-7078-222-A	LS-060 BOARD, COMPLETE
105	1-823-908-11	CABLE, FLEXIBLE FLAT (FVL-001)
⚠106	1-961-664-11	HARNESS (AC-249)
108	1-823-907-11	CABLE, FLEXIBLE FLAT (FVR-014)
109	1-823-906-11	CABLE, FLEXIBLE FLAT (FVR-013)
110	A-7078-225-A	RS-083 BOARD, COMPLETE
* 111	3-063-337-01	SWITCH, SLIDE
112	3-970-608-41	SUMITITE (B3), +BV

Ref. No.	Part No.	Description
113	3-072-983-01	PANEL, REAR
114	1-823-909-11	CABLE, FLEXIBLE FLAT (FVJ-017)
115	1-961-676-11	HARNESS (VJ-111)
116	1-961-675-11	HARNESS (VJ-110)
117	1-961-674-11	HARNESS (VJ-109)
118	A-7078-220-A	JK-216 BOARD, COMPLETE
119	1-823-905-11	CABLE, FLEXIBLE FLAT (FVX-001)
120	A-7078-208-A	XL-005 BOARD, COMPLETE
121	A-7078-224-A	RS-082 BOARD, COMPLETE
122	1-543-793-11	FILTER, CLAMP (FERRITE CORE)
M907	1-763-831-11	MOTOR, FAN

6-1-4. MAIN FRAME ASSEMBLY

ns: not supplied



☛: *BT701 (V/L RECHARGEABLE BATTERY)*
Board on the mount position. (See page 4-130.)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or eqivalent type.

Ref. No.	Part No.	Description
151	3-970-608-01	SUMITITE (B3), +BV
152	A-7095-082-A	VD-032 COMPL (DSR-45)
152	A-7095-084-A	VD-032 COMPL (DSR-45P)
153	1-823-912-11	CABLE, FLEXIBLE FLAT (FVJ-021)
154	1-823-911-11	CABLE, FLEXIBLE FLAT (FVJ-020)
155	3-974-011-01	RUBBER, VIBRATION PROOF
156	3-974-010-01	SCREW (M3), STEP

Ref. No.	Part No.	Description
⚠157	1-468-666-11	POWER BLOCK
158	1-823-910-11	CABLE, FLEXIBLE FLAT (FVJ-019)
159	1-961-672-11	HARNESS (VJ-108)
160	1-961-669-11	HARNESS (CD-116)
161	1-961-670-11	HARNESS (JD-054)
162	1-961-668-11	HARNESS (PD-116)
163	4-035-160-01	PURSE LOCK (S) (DIA. 12)

6-1-5. CMX BLOCK ASSEMBLY

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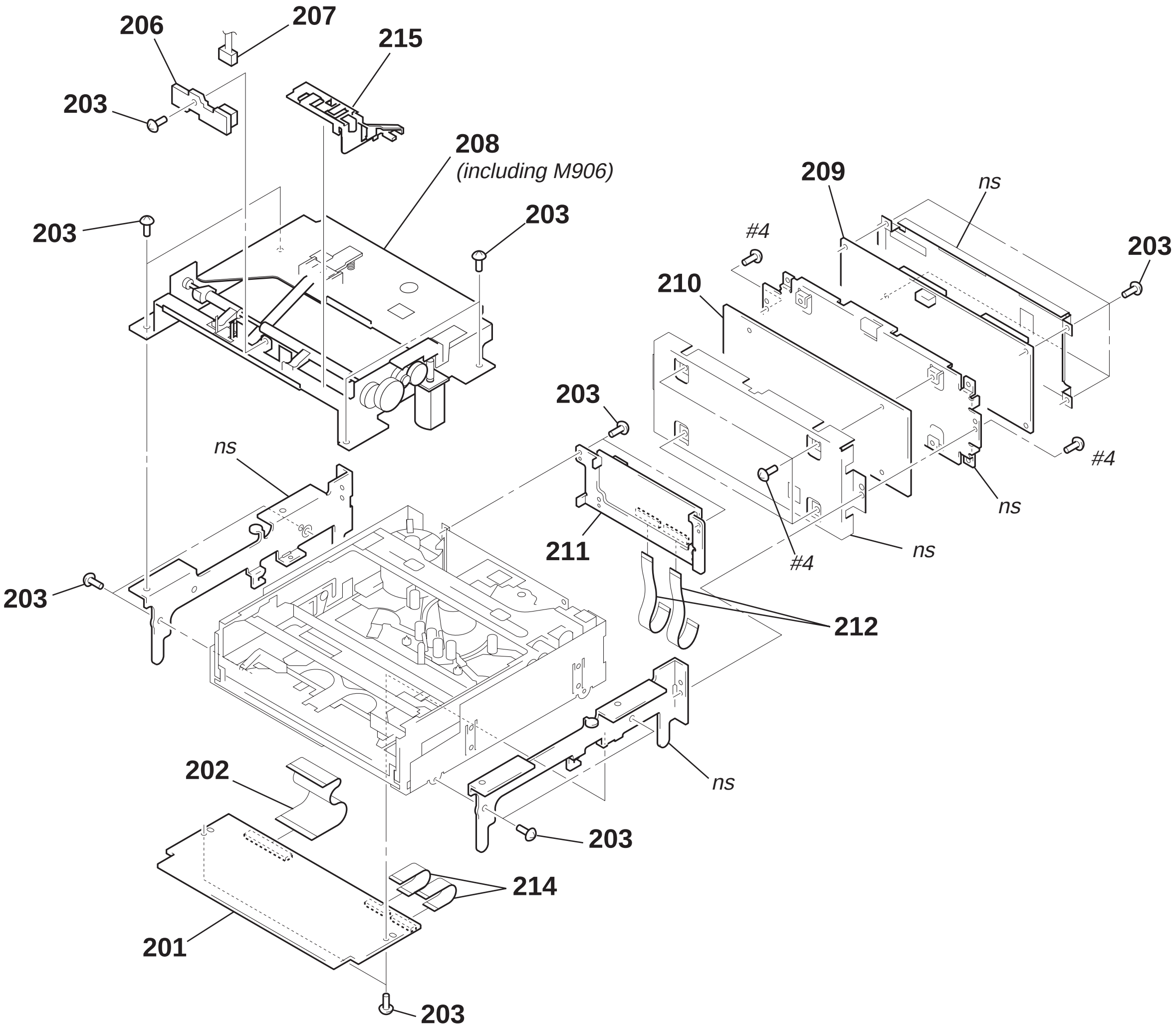
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Ref. No.	Part No.	Description
201	A-7067-274-A	CM-59 BOARD, COMPLETE
202	1-791-660-11	CABLE, FLEXIBLE FLAT (FJC-1)
203	3-732-817-01	SCREW (2X4.5), TAPPING
206	A-7078-227-A	CK-107 BOARD, COMPLETE
207	1-961-671-11	HARNESS (VD-058)
208	A-7094-618-A	CK BLOCK ASSY (including M906)

Ref. No.	Part No.	Description
209	A-7095-083-A	JC-21 BOARD, COMPLETE
210	A-7067-272-A	DI-73 BOARD, COMPLETE
211	A-7067-275-A	RP-234 BOARD, COMPLETE
212	1-791-661-11	CABLE, FLEXIBLE FLAT (FRJ-1)
214	1-791-662-11	CABLE, FLEXIBLE FLAT (FMD-14)
215	3-057-667-01	HOLDER, HARNESS

6-1-6. MECHANISM DECK ASSEMBLY (DRUM ASSEMBLY)

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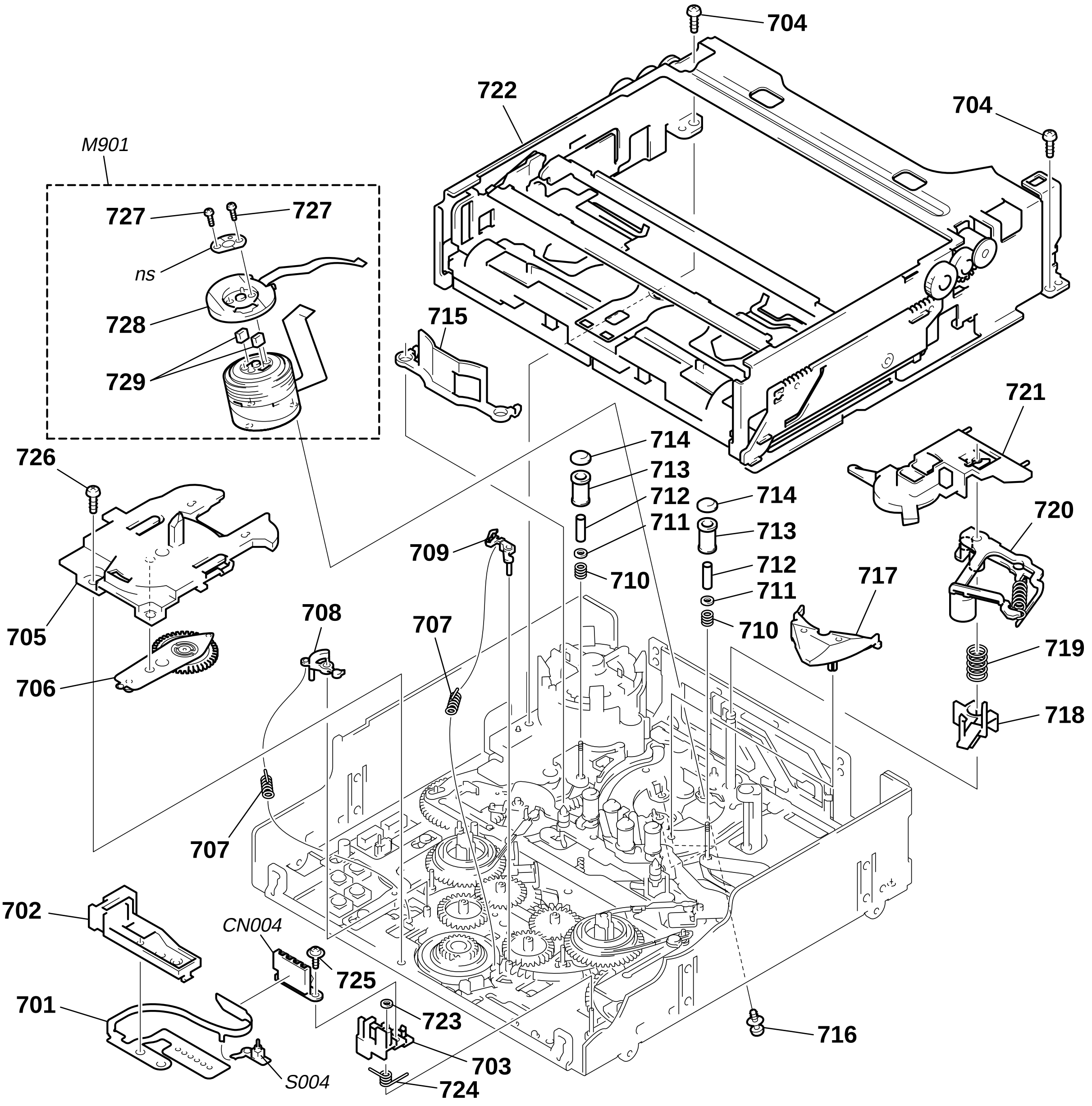
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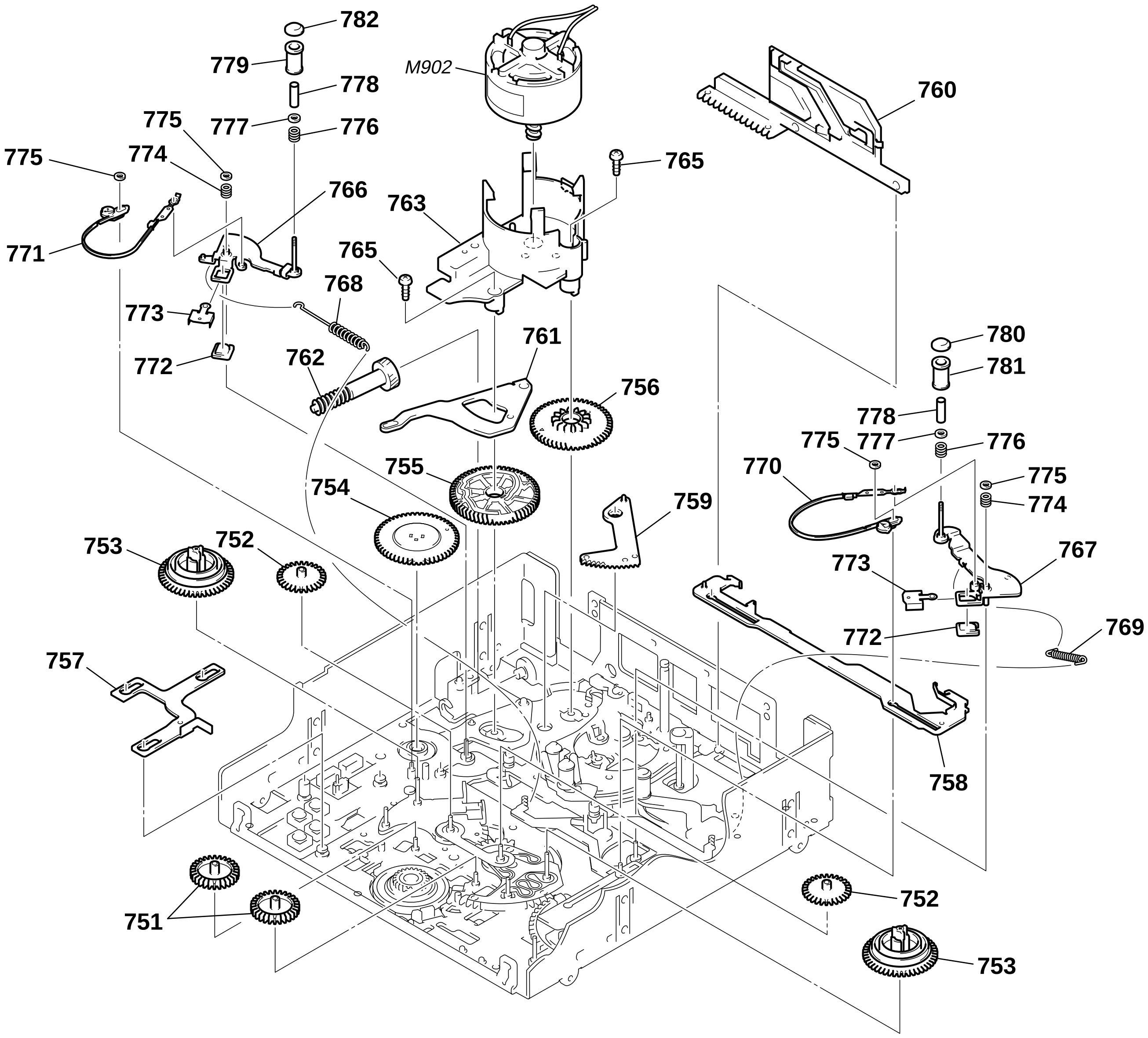
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
701	1-675-561-11	FP-104 FLEXIBLE BOARD	717	3-973-171-01	SUPPORT, TAPE
* 702	3-057-351-01	GUIDE, MIC BASE	718	3-057-227-01	RETAINER, TAPE
703	3-057-350-02	BASE, MIC	719	3-973-818-01	SPRING, COMPRESSION (TAPE RETAINER)
704	3-732-817-01	SCREW (2X4.5), TAPPING	720	X-3949-915-1	ARM ASSY, PINCH
705	3-057-319-01	RETAINER, PENDULUM	721	3-057-228-01	CAP, DRUM
706	X-3949-922-1	ARM ASSY, PENDULUM	722	A-7094-602-B	COMPARTMENT BLOCK ASSY
707	3-057-286-01	SPRING, EXTENSION (BRAKE)	723	3-726-829-01	WASHER, STOPPER
708	3-057-280-01	ARM (S), BRAKE	724	3-057-353-01	SPRING, MIC BASE
709	3-057-279-01	BRAKE (T), RATCHET	725	3-318-201-11	SCREW (B) (1.4X3), TAPPING
710	3-057-232-01	SPRING, COMPRESSION (TG)	726	3-973-266-01	SCREW (M2X2.2 (MEK)), HEAD
711	3-057-238-01	RING, TG	727	3-703-816-74	SCREW (M1.4X4.5)
712	3-057-237-01	SLEEVE, TG	728	X-3944-897-1	FPC ASSY, MOTOR
713	3-057-235-01	ROLLER, TG	729	1-770-363-11	CONNECTOR, ELASTIC
714	3-057-234-01	FLANGE, TG UPPER	CN004	1-770-312-21	CONNECTOR 4P
715	3-057-379-01	GUARD, GUIDE	M901	A-7048-947-A	DRUM ASSY (DEH-21A-R)
716	A-7094-608-B	SCREW ASSY, DRUM FITTING	S004	1-762-351-21	SWITCH, PUSH (1 KEY) (REC PROOF)

6-1-7. MECHANISM DECK ASSEMBLY (GEAR, ARM)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Ref. No.	Part No.	Description
751	A-7096-800-A	GEAR (A) ASSY, IDLER
752	3-057-311-01	GEAR (B), IDLER
753	A-7094-599-A	REEL (LARGE) BLOCK ASSY
754	3-057-267-01	GEAR, ENCODER
755	3-057-294-01	GEAR, MAIN CAM
756	3-973-140-01	GEAR, SUB CAM
* 757	3-057-302-01	SLIDER, SBR
* 758	3-057-314-01	SLIDER, SUB
759	X-3950-816-1	ARM ASSY, LOADING
760	3-057-221-01	SLIDER, PINCH
* 761	3-057-252-01	ARM, SUB SLIDER
762	3-973-159-01	GEAR, JOINT
763	3-057-222-02	HOLDER, MOTOR
765	3-973-266-01	SCREW (M2X2.2 (MEK)), HEAD
766	X-3949-918-1	ARM ASSY, TG2
767	X-3949-919-1	ARM ASSY, TG7
768	3-057-295-01	SPRING, EXTENSION (TG2)
769	3-057-296-02	SPRING, EXTENSION (TG7)
770	X-3949-921-1	BAND (TG7) ASSY
771	X-3949-920-1	BAND (TG2) ASSY
772	3-057-281-01	MAGNET, ET
773	3-057-336-01	HOLDER, MAGNET
774	3-057-344-01	SPRING, COMPRESSION (TG ARM)
775	3-726-829-01	WASHER, STOPPER
776	3-057-232-01	SPRING, COMPRESSION (TG)
777	3-057-238-01	RING, TG
778	3-057-237-01	SLEEVE, TG
779	3-057-235-01	ROLLER, TG
780	3-057-234-01	FLANGE, TG UPPER
781	3-057-337-01	ROLLER, TG7
782	3-063-887-01	FLANGE (2), TG UPPER
M902	X-3946-702-1	MOTOR ASSY, CAM

6-1-8. MECHANISM DECK ASSEMBLY (MOTOR, MD BOARD)

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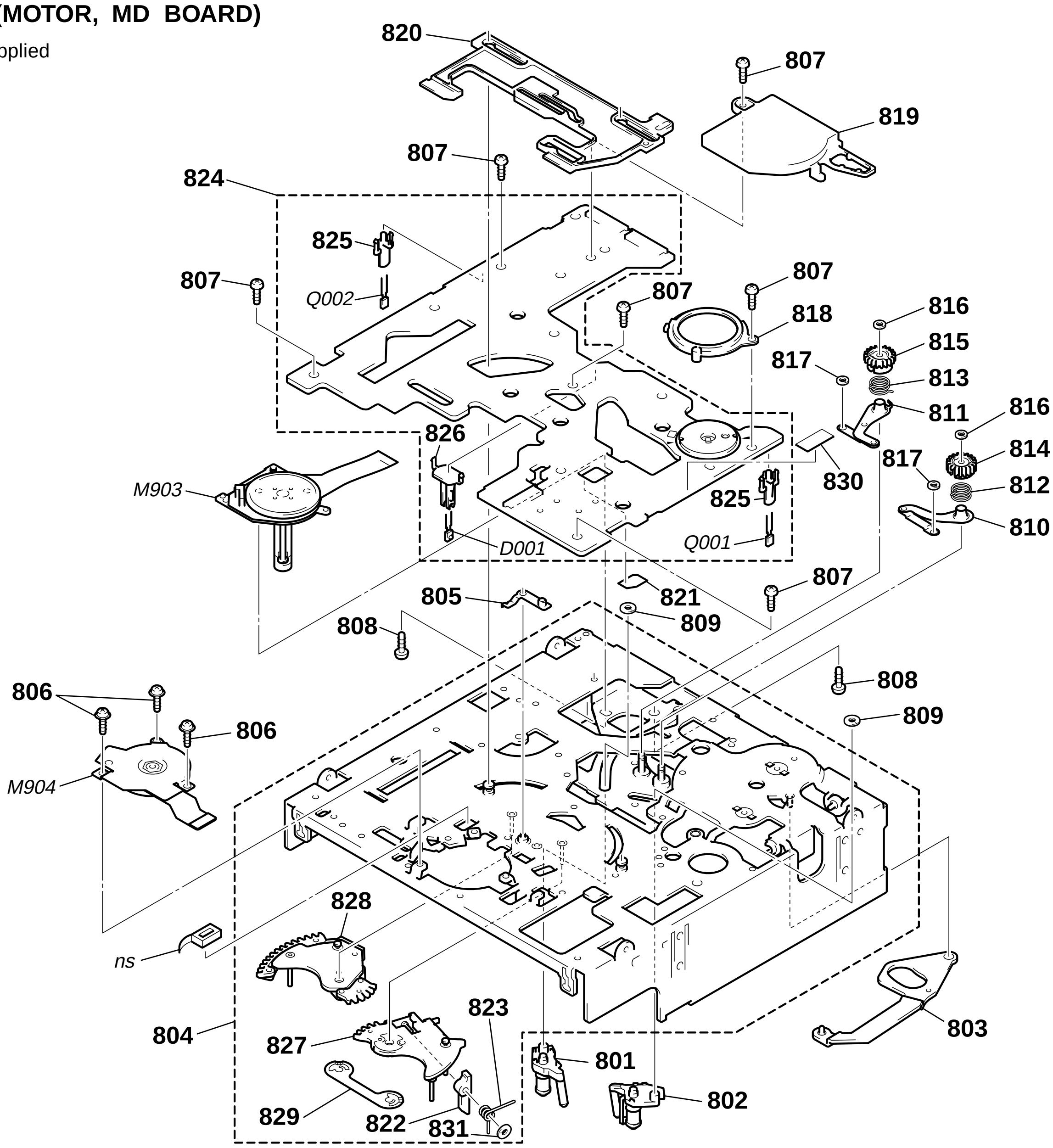
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Ref. No.	Part No.	Description
801	A-7025-007-A	COASTER (T) BLOCK ASSY
802	A-7096-267-A	COASTER (S) BLOCK ASSY (R)
* 803	3-057-283-01	ARM, MAIN SLIDER
804	X-3949-916-9	CHASSIS ASSY, MECHANICAL
805	X-3949-924-1	STOPPER ASSY, PENDULUM
806	3-947-503-01	SCREW (M1.4)
807	3-732-817-01	SCREW (2X4.5), TAPPING
808	3-973-266-01	SCREW (M2X2.2 (MEK)), HEAD
809	3-973-142-01	STOPPER, COASTER PUNCHING
810	X-3946-690-1	ARM (S) ASSY, GL
811	X-3946-689-1	ARM (T) ASSY, GL
812	3-973-146-02	SPRING (S), GL TORSION
813	3-973-156-02	SPRING (T), GL TORSION
814	3-973-264-01	GEAR (S), GL
815	3-973-138-01	GEAR (T), GL
816	3-727-176-01	WASHER, STOPPER
817	3-973-143-01	WASHER, COASTER STOPPER
818	3-057-339-01	COVER, ENCODER
819	3-057-340-01	COVER, CAPSTAN
820	3-057-282-01	SLIDER, MAIN
821	1-657-785-11	FP-248 FLEXIBLE BOARD (DEW SENSOR)
822	3-057-320-01	BLOCK, REEL LOCK RELEASE
823	3-057-354-01	SPRING, REEL LOCK RELEASE
824	A-7067-229-A	MD-76 BOARD, COMPLETE
* 825	3-066-170-01	HOLDER, SENSOR (A)
* 826	3-057-555-01	HOLDER, LED
827	X-3950-199-1	BASE (S) ASSY, REEL
828	X-3950-200-1	BASE (T) ASSY, REEL
829	3-057-265-01	RETAINER, REEL BASE
830	3-941-343-21	TAPE (A)
831	3-726-829-01	WASHER, STOPPER
D001	8-719-988-42	DIODE GL453S
M903	8-835-648-01	MOTOR, DC SCD17A/J-N (CAPSTAN)
M904	X-3949-928-1	MOTOR ASSY, REEL
Q001	8-729-907-25	PHOTO TRANISTOR PT4850F (TAPE END)
Q002	8-729-907-25	PHOTO TRANISTOR PT4850F (TAPE TOP)

6-1-9. MECHANISM DECK ASSEMBLY (CASSETTE COMPARTMENT)

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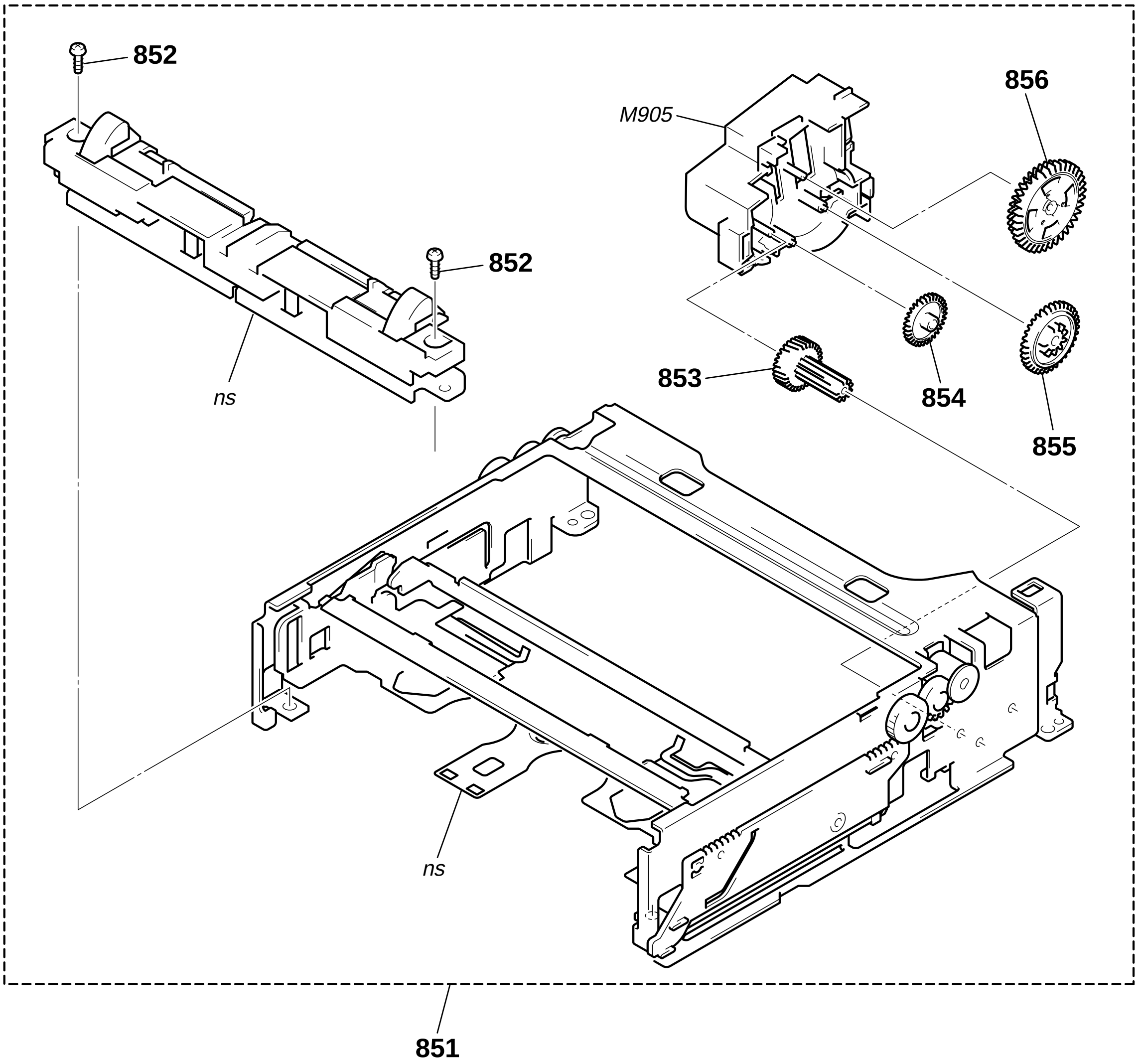

Ref. No.	Part No.	Description
851	A-7094-602-B	COMPARTMENT BLOCK ASSY
852	3-732-817-01	SCREW (2X4.5), TAPPING
853	3-057-253-01	GEAR, WHEEL
854	3-057-254-01	GEAR (A)

Ref. No.	Part No.	Description
855	3-057-255-01	GEAR (B)
856	A-7094-689-A	CD BLOCK ASSY, GEAR
M905	X-3949-925-1	MOTOR ASSY, FL

6-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Not all of the parts for POWER BLOCK (ACS1581-MA) are listed.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA. . : μA. . uPA. . : μPA. .
  uPB. .: μPB. . uPC. . : μPC. .
  uPD. .: μPD. .
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			
	A-7078-227-A	CK-107 BOARD, COMPLETE			
		************************			
		< CONNECTOR >			
* CN901	1-580-057-11	PIN, CONNECTOR (SMD) 4P			
		< SWITCH >			
S900	1-762-947-12	SWITCH, PUSH (1 KEY) (CASSETTE DET)			
S901	1-771-813-11	SWITCH, PUSH (1 KEY) (STANDBY)			
S902	1-771-813-11	SWITCH, PUSH (1 KEY) (PUSH OUT)			
	A-7067-274-A	CM-59 BOARD, COMPLETE			
		**********************			
		< CAPACITOR >			
C100	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C101	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C102	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C103	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C104	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C105	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C106	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C107	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C108	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C109	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C110	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C111	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C112	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C113	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C114	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C115	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C116	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C117	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C118	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C119	1-119-869-91	CERAMIC CHIP	10uF		35V
C120	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C121	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C122	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C129	1-119-869-91	CERAMIC CHIP	10uF		35V
C130	1-119-869-91	CERAMIC CHIP	10uF		35V
C131	1-119-869-91	CERAMIC CHIP	10uF		35V
C132	1-119-869-91	CERAMIC CHIP	10uF		35V
C134	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C135	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C136	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C137	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C200	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C201	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C202	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C203	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C204	1-113-987-11	TANTAL. CHIP	4.7uF	20%	25V
C205	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C206	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C207	1-131-861-91	TANTAL. CHIP	4.7uF	20%	20V
C208	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C300	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C301	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C302	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C303	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C320	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C321	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C322	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C323	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C324	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C325	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C326	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C327	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C329	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C330	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C331	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C400	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C401	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C402	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C403	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C404	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C405	1-131-861-91	TANTAL. CHIP	4.7uF	20%	20V
C406	1-131-861-91	TANTAL. CHIP	4.7uF	20%	20V
C407	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C501	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C502	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C503	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C504	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C505	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C506	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C507	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V

Ref. No.	Part No.	Description			
C508	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C509	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C510	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C511	1-131-861-91	TANTAL. CHIP	4.7uF	20%	20V
C512	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C515	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C518	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C519	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C520	1-131-861-91	TANTAL. CHIP	4.7uF	20%	20V
C521	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C522	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C523	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C524	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C525	1-131-861-91	TANTAL. CHIP	4.7uF	20%	20V
C526	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C527	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C528	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C529	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C530	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
		< CONNECTOR >			
CN001	1-778-637-21	CONNECTOR, FFC/FPC (ZIF) 50P			
CN100	1-506-473-11	PIN, CONNECTOR 8P			
CN200	1-691-385-21	CONNECTOR, FFC/FPC 21P			
CN201	1-691-385-21	CONNECTOR, FFC/FPC 21P			
* CN300	1-580-055-21	PIN, CONNECTOR (SMD) 2P			
CN400	1-750-341-11	CONNECTOR, FFC/EPC (ZIF) 18P			
CN500	1-573-351-11	CONNECTOR, FFC/FPC (ZIF) 11P			
* CN501	1-580-055-21	PIN, CONNECTOR (SMD) 2P			
		< DIODE >			
D101	8-719-066-98	DIODE RB051L-40TE25			
D102	8-719-066-98	DIODE RB051L-40TE25			
D103	8-719-066-98	DIODE RB051L-40TE25			
D104	8-719-066-98	DIODE RB051L-40TE25			
		< FUSE >			
⚠F100	1-532-777-21	FUSE, MICRO (SECONDARY) (1.25A/125V)			
		< IC >			
IC100	8-759-060-94	IC MB3785APFV-G-BND-ER			
IC101	8-759-689-44	IC MM1385GNLE			
IC102	8-759-648-48	IC TC7W34FU (TE12R)			
IC200	8-759-339-61	IC LB1897D			
IC202	8-759-338-95	IC NJM2903V (TE2)			
IC300	8-759-327-61	IC LB8112V-TLM			
IC400	8-759-431-41	IC LB1991V-TLM			
IC500	8-759-431-30	IC CXA8062R-EB			
IC501	8-759-434-46	IC TA8486F (EL)			
		< SHORT >			
JR501	1-216-864-11	METAL CHIP	0	5%	1/16W
JR502	1-216-864-11	METAL CHIP	0	5%	1/16W
JR503	1-216-864-11	METAL CHIP	0	5%	1/16W
JR504	1-216-864-11	METAL CHIP	0	5%	1/16W
JR505	1-216-864-11	METAL CHIP	0	5%	1/16W

Ref. No.	Part No.	Description			
		< COIL >			
L100	1-406-823-11	INDUCTOR	10uH		
L101	1-406-823-11	INDUCTOR	10uH		
L102	1-424-522-21	INDUCTOR	10uH		
L103	1-406-823-11	INDUCTOR	10uH		
L104	1-409-535-41	INDUCTOR	100uH		
L105	1-409-535-41	INDUCTOR	100uH		
L106	1-424-523-21	INDUCTOR	22uH		
L107	1-406-825-11	INDUCTOR	33uH		
L200	1-414-398-11	INDUCTOR	10uH		
L400	1-414-754-11	INDUCTOR	10uH		
L500	1-414-754-11	INDUCTOR	10uH		
		< TRANSISTOR >			
Q100	8-729-048-75	TRANSISTOR	CPH3109-TL-E		
Q101	8-729-048-75	TRANSISTOR	CPH3109-TL-E		
Q102	8-729-048-75	TRANSISTOR	CPH3109-TL-E		
Q103	8-729-048-75	TRANSISTOR	CPH3109-TL-E		
Q104	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX		
Q105	8-729-037-72	TRANSISTOR	UN9211J- (TX).SO		
Q200	8-729-424-02	TRANSISTOR	2SB709A-QRS-TX		
Q201	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO		
Q301	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO		
Q302	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO		
		< RESISTOR >			
R100	1-216-049-11	RES-CHIP	1K	5%	1/10W
R101	1-216-041-00	METAL CHIP	470	5%	1/10W
R102	1-216-025-11	RES-CHIP	100	5%	1/10W
R103	1-216-841-11	METAL CHIP	47K	5%	1/16W
R104	1-218-890-11	METAL CHIP	62K	0.5%	1/10W
R105	1-218-883-11	METAL CHIP	33K	0.5%	1/10W
R106	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R107	1-218-865-11	METAL CHIP	5.6K	0.5%	1/10W
R108	1-216-864-11	METAL CHIP	0	5%	1/16W
R109	1-216-864-11	METAL CHIP	0	5%	1/16W
R110	1-216-864-11	METAL CHIP	0	5%	1/16W
R111	1-216-833-11	METAL CHIP	10K	5%	1/16W
R112	1-216-049-11	RES-CHIP	1K	5%	1/10W
R114	1-216-837-11	METAL CHIP	22K	5%	1/16W
R115	1-216-839-11	METAL CHIP	33K	5%	1/16W
R116	1-218-878-11	METAL CHIP	20K	0.5%	1/10W
R117	1-216-834-11	METAL CHIP	12K	5%	1/16W
R118	1-216-864-11	METAL CHIP	0	5%	1/16W
R120	1-216-864-11	METAL CHIP	0	5%	1/16W
R122	1-216-864-11	METAL CHIP	0	5%	1/16W
R123	1-216-838-11	METAL CHIP	27K	5%	1/16W
R124	1-216-864-11	METAL CHIP	0	5%	1/16W
R126	1-216-833-11	METAL CHIP	10K	5%	1/16W
R127	1-216-842-11	METAL CHIP	56K	5%	1/16W
R128	1-216-864-11	METAL CHIP	0	5%	1/16W
R131	1-218-865-11	METAL CHIP	5.6K	0.5%	1/10W
R136	1-216-864-11	METAL CHIP	0	5%	1/16W
R200	1-216-821-11	METAL CHIP	1K	5%	1/16W
R201	1-216-833-11	METAL CHIP	10K	5%	1/16W
R202	1-218-878-11	METAL CHIP	20K	0.5%	1/10W
R203	1-218-873-11	METAL CHIP	12K	0.5%	1/10W

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			
R204	1-216-857-11	METAL CHIP	1M	5%	1/16W
R205	1-217-671-11	METAL CHIP	1	5%	1/10W
R206	1-217-671-11	METAL CHIP	1	5%	1/10W
R207	1-217-671-11	METAL CHIP	1	5%	1/10W
R208	1-217-671-11	METAL CHIP	1	5%	1/10W
R209	1-216-853-11	METAL CHIP	470K	5%	1/16W
R211	1-216-864-11	METAL CHIP	0	5%	1/16W
R212	1-216-821-11	METAL CHIP	1K	5%	1/16W
R213	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R214	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R215	1-216-821-11	METAL CHIP	1K	5%	1/16W
R223	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R224	1-216-841-11	METAL CHIP	47K	5%	1/16W
R225	1-216-295-91	SHORT	0		
R300	1-216-835-11	METAL CHIP	15K	5%	1/16W
R301	1-216-835-11	METAL CHIP	15K	5%	1/16W
R302	1-216-818-11	METAL CHIP	560	5%	1/16W
R303	1-216-818-11	METAL CHIP	560	5%	1/16W
R304	1-216-864-11	METAL CHIP	0	5%	1/16W
R306	1-216-295-91	SHORT	0		
R307	1-216-864-11	METAL CHIP	0	5%	1/16W
R308	1-216-864-11	METAL CHIP	0	5%	1/16W
R309	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R310	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R311	1-218-859-11	METAL CHIP	3.3K	0.5%	1/10W
R312	1-218-863-11	METAL CHIP	4.7K	0.5%	1/10W
R313	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R314	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R315	1-216-841-11	METAL CHIP	47K	5%	1/16W
R316	1-216-841-11	METAL CHIP	47K	5%	1/16W
R317	1-216-821-11	METAL CHIP	1K	5%	1/16W
R318	1-216-821-11	METAL CHIP	1K	5%	1/16W
R319	1-216-821-11	METAL CHIP	1K	5%	1/16W
R320	1-216-821-11	METAL CHIP	1K	5%	1/16W
R323	1-216-864-11	METAL CHIP	0	5%	1/16W
R324	1-216-833-11	METAL CHIP	10K	5%	1/16W
R325	1-216-845-11	METAL CHIP	100K	5%	1/16W
R326	1-216-833-11	METAL CHIP	10K	5%	1/16W
R327	1-216-833-11	METAL CHIP	10K	5%	1/16W
R328	1-216-833-11	METAL CHIP	10K	5%	1/16W
R329	1-216-864-11	METAL CHIP	0	5%	1/16W
R330	1-216-845-11	METAL CHIP	100K	5%	1/16W
R332	1-216-845-11	METAL CHIP	100K	5%	1/16W
R333	1-216-833-11	METAL CHIP	10K	5%	1/16W
R334	1-216-833-11	METAL CHIP	10K	5%	1/16W
R335	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R336	1-216-845-11	METAL CHIP	100K	5%	1/16W
R337	1-217-671-11	METAL CHIP	1	5%	1/10W
R339	1-218-863-11	METAL CHIP	4.7K	0.5%	1/10W
R340	1-218-859-11	METAL CHIP	3.3K	0.5%	1/10W
R342	1-217-671-11	METAL CHIP	1	5%	1/10W
R400	1-216-833-11	METAL CHIP	10K	5%	1/16W
R401	1-216-821-11	METAL CHIP	1K	5%	1/16W
R402	1-216-295-91	SHORT	0		
R403	1-216-836-11	METAL CHIP	18K	5%	1/16W
R405	1-216-845-11	METAL CHIP	100K	5%	1/16W
R500	1-216-295-91	SHORT	0		
R501	1-218-839-11	METAL CHIP	470	0.5%	1/10W
R503	1-216-833-11	METAL CHIP	10K	5%	1/16W
R504	1-216-833-11	METAL CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			
R505	1-216-833-11	METAL CHIP	10K	5%	1/16W
R506	1-216-864-11	METAL CHIP	0	5%	1/16W
R507	1-216-821-11	METAL CHIP	1K	5%	1/16W
R508	1-218-899-11	METAL CHIP	150K	0.5%	1/16W
R509	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R511	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R512	1-216-809-11	METAL CHIP	100	5%	1/16W
R513	1-216-809-11	METAL CHIP	100	5%	1/16W
R514	1-216-809-11	METAL CHIP	100	5%	1/16W
R515	1-217-671-11	METAL CHIP	1	5%	1/10W
R516	1-217-671-11	METAL CHIP	1	5%	1/10W
R518	1-218-879-11	METAL CHIP	22K	0.5%	1/10W
R519	1-218-879-11	METAL CHIP	22K	0.5%	1/10W
R520	1-218-897-11	METAL CHIP	120K	0.5%	1/10W
R522	1-218-901-11	METAL CHIP	180K	0.5%	1/10W
R525	1-216-864-11	METAL CHIP	0	5%	1/16W
R526	1-218-629-91	METAL CHIP	180	5%	1W
R527	1-218-629-91	METAL CHIP	180	5%	1W
R528	1-218-629-91	METAL CHIP	180	5%	1W
R529	1-218-629-91	METAL CHIP	180	5%	1W
R530	1-216-821-11	METAL CHIP	1K	5%	1/16W
R531	1-216-821-11	METAL CHIP	1K	5%	1/16W
R532	1-217-671-11	METAL CHIP	1	5%	1/10W
R533	1-217-671-11	METAL CHIP	1	5%	1/10W
R534	1-217-671-11	METAL CHIP	1	5%	1/10W
R535	1-217-671-11	METAL CHIP	1	5%	1/10W
R536	1-216-821-11	METAL CHIP	1K	5%	1/16W

A-7067-272-A DI-73 BOARD, COMPLETE
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< CAPACITOR >

C7000	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C7001	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C7002	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C7003	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C7004	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C7005	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C7006	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C7007	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C7016	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7017	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7018	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7019	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7020	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7021	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7022	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7023	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7024	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7025	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7026	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7027	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7028	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7029	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7030	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7031	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7032	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7033	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7034	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C7035	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V

Ref. No.	Part No.	Description			
C7038	1-113-994-11	TANTAL. CHIP	6.8uF	20%	16V
C7039	1-113-994-11	TANTAL. CHIP	6.8uF	20%	16V
C7040	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C7041	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C7042	1-113-994-11	TANTAL. CHIP	6.8uF	20%	16V
C7043	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C7044	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C7045	1-113-994-11	TANTAL. CHIP	6.8uF	20%	16V
C7046	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C7047	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C7048	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C7049	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C7050	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C7051	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C7052	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C7053	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C7054	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C7055	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C7056	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C7057	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C7058	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C7059	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C7060	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C7061	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C7062	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C7063	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C7064	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C7065	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C7066	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C7067	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C7068	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C7069	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C7100	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C7101	1-113-994-11	TANTAL. CHIP	6.8uF	20%	16V
C7201	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C7202	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C7203	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C7204	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C7301	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C7302	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C7303	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C7304	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C7305	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C7306	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C7307	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C7308	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C7401	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C7402	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C7403	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C7404	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C7405	1-164-337-11	CERAMIC CHIP	2.2uF		16V
C8000	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C8001	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C8002	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C8003	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C8004	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C8005	1-113-682-11	TANTAL. CHIP	33uF	20%	10V
C8006	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C8007	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C8008	1-162-974-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description			
C8009	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C8010	1-111-253-11	TANTAL. CHIP	100uF	20%	6.3V
C8011	1-111-253-11	TANTAL. CHIP	100uF	20%	6.3V
C8012	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C8013	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C8014	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C8015	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C8016	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C8017	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C8018	1-113-994-11	TANTAL. CHIP	6.8uF	20%	16V
C8019	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C8020	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C8021	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C8022	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C8024	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C8025	1-162-625-11	CERAMIC CHIP	0.0047uF	5%	50V
C8026	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C8027	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C8100	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C8101	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C8102	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C8201	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C9000	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C9001	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C9002	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C9003	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C9004	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C9005	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C9006	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C9007	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C9008	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C9009	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C9010	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C9011	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C9012	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C9013	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C9014	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C9015	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C9016	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C9017	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C9018	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C9019	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C9020	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C9021	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C9022	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C9023	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C9024	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C9025	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C9026	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C9027	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C9028	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C9029	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C9030	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C9031	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C9032	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C9033	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C9034	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C9035	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C9036	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C9037	1-164-156-11	CERAMIC CHIP	0.1uF		25V

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Ref. No.	Part No.	Description
C9038	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C9500	1-164-360-11	CERAMIC CHIP 0.1uF 16V
C9501	1-164-360-11	CERAMIC CHIP 0.1uF 16V
C9502	1-164-360-11	CERAMIC CHIP 0.1uF 16V
C9503	1-164-360-11	CERAMIC CHIP 0.1uF 16V
C9504	1-164-360-11	CERAMIC CHIP 0.1uF 16V
C9505	1-164-360-11	CERAMIC CHIP 0.1uF 16V
C9506	1-164-360-11	CERAMIC CHIP 0.1uF 16V
C9507	1-164-360-11	CERAMIC CHIP 0.1uF 16V
C9508	1-164-360-11	CERAMIC CHIP 0.1uF 16V
C9509	1-164-360-11	CERAMIC CHIP 0.1uF 16V
C9510	1-162-927-11	CERAMIC CHIP 100PF 5% 50V
C9511	1-110-569-11	TANTAL. CHIP 47uF 20% 6.3V
C9512	1-164-360-11	CERAMIC CHIP 0.1uF 16V
C9513	1-162-927-11	CERAMIC CHIP 100PF 5% 50V
C9514	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C9515	1-164-360-11	CERAMIC CHIP 0.1uF 16V
C9516	1-164-360-11	CERAMIC CHIP 0.1uF 16V
		< CONNECTOR >
CN9500	1-794-773-11	CONNECTOR BOAD TO BOAD 120P
		< DIODE >
D7301	8-719-421-67	DIODE MA132WK-TX
D7302	8-719-421-67	DIODE MA132WK-TX
		< FILTER >
FL9000	1-233-345-21	FILTER, LOW PASS (5.5MHz)
FL9001	1-233-345-21	FILTER, LOW PASS (5.5MHz)
FL9002	1-233-345-21	FILTER, LOW PASS (5.5MHz)
		< IC >
IC7000	8-759-422-21	IC NJM4580V (TE2)
IC7001	8-759-422-21	IC NJM4580V (TE2)
IC7002	8-759-358-47	IC NJM2115V (TE2)
IC7003	8-759-358-47	IC NJM2115V (TE2)
IC7004	8-759-523-02	IC TC74HC4053AFT (EL)
IC7005	8-759-523-02	IC TC74HC4053AFT (EL)
IC7006	8-759-523-02	IC TC74HC4053AFT (EL)
IC7007	8-759-523-02	IC TC74HC4053AFT (EL)
IC7008	8-759-358-47	IC NJM2115V (TE2)
IC7009	8-759-358-47	IC NJM2115V (TE2)
IC7010	8-759-358-47	IC NJM2115V (TE2)
IC7011	8-759-358-47	IC NJM2115V (TE2)
IC7013	8-759-358-47	IC NJM2115V (TE2)
IC7014	8-759-358-47	IC NJM2115V (TE2)
IC7016	8-759-679-92	IC AK4528VF-E2
IC7018	8-759-679-92	IC AK4528VF-E2
IC7020	8-759-359-49	IC NJM3414AV (TE2)
IC7021	8-759-359-49	IC NJM3414AV (TE2)
IC8000	8-759-058-60	IC TC7SU04FU (TE85R)
IC8001	8-759-196-96	IC TC7SH08FU-TE85R
IC8002	8-759-447-77	IC TC7WH74FU (TE12R)
IC8003	8-752-391-87	IC CXD2712R
IC8004	8-759-678-15	IC TLV2231CDBVR
IC8005	8-759-369-73	IC NJM4556AM-A-TE2
IC8006	8-759-494-88	IC TC75S56F (TE85R)
IC8007	8-759-523-02	IC TC74HC4053AFT (EL)
IC8008	8-759-678-15	IC TLV2231CDBVR

Ref. No.	Part No.	Description
IC8009	8-759-696-00	IC HD6433837TSC73X
IC8010	8-759-564-49	IC TC7W53FU (TE12R)
IC8011	8-759-058-62	IC TC7S08FU (TE85R)
IC8201	8-759-443-08	IC TC7W241FU-TE12R
IC9000	8-752-371-65	IC CXD2304R-T4
IC9001	8-759-449-58	IC LM7131BCM5X
IC9004	8-759-524-52	IC TC74VHC574FT (EL)
IC9005	8-759-270-56	IC SN74HC377ANSR
IC9006	8-759-523-95	IC TC74VHC74FT (EL)
IC9007	8-759-449-58	IC LM7131BCM5X
IC9008	8-759-270-56	IC SN74HC377ANSR
IC9009	8-759-270-56	IC SN74HC377ANSR
IC9010	8-759-449-58	IC LM7131BCM5X
IC9011	8-759-582-71	IC M66280FP-280D
IC9012	8-759-524-10	IC TC74VHC157FT (EL)
IC9013	8-759-582-71	IC M66280FP-280D
IC9014	8-759-531-92	IC TC7WH04FU (TE12R)
IC9015	8-759-524-50	IC TC74VHC541FT (EL)
IC9016	8-759-524-50	IC TC74VHC541FT (EL)
IC9017	8-759-368-81	IC TK11630UTL
IC9018	8-759-528-99	IC TC74VHC221AFT (EL)
IC9019	8-759-196-97	IC TC7SH32FU-TE85R
IC9500	8-759-082-57	IC TC7W04FU (TE12R)
IC9501	8-759-524-04	IC TC74VHC125FT (EL)
IC9502	8-759-524-48	IC TC74VHC393FT (EL)
IC9503	6-700-430-01	IC MK9173-15CS08
IC9504	8-759-443-08	IC TC7W241FU-TE12R
IC9505	8-759-058-64	IC TC7S32FU (TE85R)
IC9506	8-759-524-18	IC TC74VHC163FT (EL)
IC9507	8-759-524-19	IC TC74VHC164FT (EL)
IC9508	8-759-083-94	IC TC7W74FU (TE12R)
IC9509	8-759-524-18	IC TC74VHC163FT (EL)
IC9510	8-759-524-48	IC TC74VHC393FT (EL)
IC9511	8-759-524-19	IC TC74VHC164FT (EL)
IC9512	8-759-524-18	IC TC74VHC163FT (EL)
IC9513	8-759-447-77	IC TC7WH74FU (TE12R)
IC9514	8-759-443-08	IC TC7W241FU-TE12R
IC9515	8-759-443-08	IC TC7W241FU-TE12R
IC9516	8-759-531-92	IC TC7WH04FU (TE12R)
IC9517	8-759-528-99	IC TC74VHC221AFT (EL)
IC9518	8-759-058-64	IC TC7S32FU (TE85R)
IC9519	8-759-058-64	IC TC7S32FU (TE85R)
		< SHORT >
JS7201	1-216-296-11	SHORT 0
		< COIL >
L7301	1-414-398-11	INDUCTOR 10uH
L7302	1-414-398-11	INDUCTOR 10uH
L8201	1-414-398-11	INDUCTOR 10uH
L8202	1-414-398-11	INDUCTOR 10uH
L8203	1-414-398-11	INDUCTOR 10uH
L9000	1-414-398-11	INDUCTOR 10uH
L9001	1-414-398-11	INDUCTOR 10uH
L9002	1-414-398-11	INDUCTOR 10uH
L9003	1-414-398-11	INDUCTOR 10uH
L9500	1-414-398-11	INDUCTOR 10uH
		< TRANSISTOR >
Q7000	8-729-037-72	TRANSISTOR UN9211J- (K8).SO

Ref. No.	Part No.	Description			
Q7001	8-729-037-72	TRANSISTOR	UN9211J- (K8).SO		
Q7002	8-729-037-72	TRANSISTOR	UN9211J- (K8).SO		
Q7003	8-729-037-72	TRANSISTOR	UN9211J- (K8).SO		
Q7004	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-B		
Q7005	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-B		
Q7007	8-729-026-52	TRANSISTOR	2SA1576A-T106-R		
Q7008	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q8000	8-729-037-72	TRANSISTOR	UN9211J- (K8).SO		
Q8001	8-729-037-72	TRANSISTOR	UN9211J- (K8).SO		
Q8201	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q8202	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q9000	8-729-026-52	TRANSISTOR	2SA1576A-T106-R		
Q9001	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q9002	8-729-026-52	TRANSISTOR	2SA1576A-T106-R		
Q9003	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q9004	8-729-026-52	TRANSISTOR	2SA1576A-T106-R		
Q9005	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q9502	8-729-402-42	TRANSISTOR	UN5213-TX		
		< RESISTOR >			
R7002	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R7003	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R7006	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R7007	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R7008	1-216-864-11	METAL CHIP	0	5%	1/16W
R7009	1-216-864-11	METAL CHIP	0	5%	1/16W
R7014	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R7015	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R7016	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R7017	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R7018	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R7019	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R7020	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R7021	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R7022	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R7023	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R7024	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R7025	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R7026	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7027	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7028	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7029	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7030	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7031	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7032	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7033	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7034	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7035	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7036	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7037	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7038	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7039	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7040	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7041	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7042	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7043	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7044	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7045	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7046	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7047	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7048	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7049	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7050	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7051	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7052	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7053	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7054	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7055	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7056	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7057	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7058	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7059	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7060	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7061	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7062	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7063	1-216-809-11	METAL CHIP	100	5%	1/16W
R7064	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7065	1-216-809-11	METAL CHIP	100	5%	1/16W
R7066	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R7067	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7068	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R7069	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7071	1-216-809-11	METAL CHIP	100	5%	1/16W
R7072	1-216-809-11	METAL CHIP	100	5%	1/16W
R7076	1-216-809-11	METAL CHIP	100	5%	1/16W
R7077	1-216-809-11	METAL CHIP	100	5%	1/16W
R7080	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7081	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7083	1-216-809-11	METAL CHIP	100	5%	1/16W
R7084	1-216-809-11	METAL CHIP	100	5%	1/16W
R7085	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7086	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7087	1-216-809-11	METAL CHIP	100	5%	1/16W
R7088	1-216-809-11	METAL CHIP	100	5%	1/16W
R7089	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7090	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7091	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7093	1-216-809-11	METAL CHIP	100	5%	1/16W
R7094	1-216-809-11	METAL CHIP	100	5%	1/16W
R7095	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7096	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7097	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7098	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R7099	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7100	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R7101	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7105	1-218-839-11	METAL CHIP	470	0.5%	1/10W
R7106	1-218-839-11	METAL CHIP	470	0.5%	1/10W
R7107	1-218-839-11	METAL CHIP	470	0.5%	1/10W
R7108	1-218-839-11	METAL CHIP	470	0.5%	1/10W
R7109	1-218-839-11	METAL CHIP	470	0.5%	1/10W
R7110	1-218-839-11	METAL CHIP	470	0.5%	1/10W
R7111	1-218-839-11	METAL CHIP	470	0.5%	1/10W
R7112	1-218-839-11	METAL CHIP	470	0.5%	1/10W
R7115	1-216-864-11	METAL CHIP	0	5%	1/16W
R7116	1-216-864-11	METAL CHIP	0	5%	1/16W
R7120	1-216-864-11	METAL CHIP	0	5%	1/16W
R7122	1-216-864-11	METAL CHIP	0	5%	1/16W
R7123	1-216-813-11	METAL CHIP	220	5%	1/16W
R7124	1-216-829-11	METAL CHIP	4.7K	5%	1/16W

Ref. No.	Part No.	Description			
R7125	1-216-813-11	METAL CHIP	220	5%	1/16W
R7126	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7127	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7128	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7129	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7130	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7131	1-216-813-11	METAL CHIP	220	5%	1/16W
R7132	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7133	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7134	1-216-813-11	METAL CHIP	220	5%	1/16W
R7135	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R7136	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7137	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7138	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R7139	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7140	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7143	1-216-813-11	METAL CHIP	220	5%	1/16W
R7144	1-216-813-11	METAL CHIP	220	5%	1/16W
R7145	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R7146	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7147	1-216-845-11	METAL CHIP	100K	5%	1/16W
R7148	1-216-845-11	METAL CHIP	100K	5%	1/16W
R7149	1-216-841-11	METAL CHIP	47K	5%	1/16W
R7150	1-216-809-11	METAL CHIP	100	5%	1/16W
R7151	1-216-809-11	METAL CHIP	100	5%	1/16W
R7152	1-216-809-11	METAL CHIP	100	5%	1/16W
R7153	1-216-809-11	METAL CHIP	100	5%	1/16W
R7156	1-216-864-11	METAL CHIP	0	5%	1/16W
R7157	1-216-864-11	METAL CHIP	0	5%	1/16W
R7201	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7202	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7203	1-216-809-11	METAL CHIP	100	5%	1/16W
R7204	1-216-809-11	METAL CHIP	100	5%	1/16W
R7205	1-216-809-11	METAL CHIP	100	5%	1/16W
R7206	1-216-809-11	METAL CHIP	100	5%	1/16W
R7301	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7302	1-216-833-11	METAL CHIP	10K	5%	1/16W
R7303	1-216-813-11	METAL CHIP	220	5%	1/16W
R7304	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7307	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R7308	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7309	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R7310	1-216-813-11	METAL CHIP	220	5%	1/16W
R7403	1-216-841-11	METAL CHIP	47K	5%	1/16W
R7404	1-216-845-11	METAL CHIP	100K	5%	1/16W
R7405	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R7406	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R7407	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R7408	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R7501	1-216-864-11	METAL CHIP	0	5%	1/16W
R7502	1-216-864-11	METAL CHIP	0	5%	1/16W
R8001	1-216-864-11	METAL CHIP	0	5%	1/16W
R8002	1-216-849-11	METAL CHIP	220K	5%	1/16W
R8007	1-216-864-11	METAL CHIP	0	5%	1/16W
R8008	1-216-864-11	METAL CHIP	0	5%	1/16W
R8009	1-216-864-11	METAL CHIP	0	5%	1/16W
R8010	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R8011	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R8014	1-218-879-11	METAL CHIP	22K	0.5%	1/10W
R8015	1-218-871-11	METAL CHIP	10K	0.5%	1/10W

Ref. No.	Part No.	Description			
R8016	1-218-879-11	METAL CHIP	22K	0.5%	1/10W
R8017	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R8018	1-216-811-11	METAL CHIP	150	5%	1/16W
R8019	1-216-811-11	METAL CHIP	150	5%	1/16W
R8020	1-216-864-11	METAL CHIP	0	5%	1/16W
R8021	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R8022	1-216-864-11	METAL CHIP	0	5%	1/16W
R8023	1-216-864-11	METAL CHIP	0	5%	1/16W
R8024	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R8025	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R8026	1-216-837-11	METAL CHIP	22K	5%	1/16W
R8029	1-216-797-11	METAL CHIP	10	5%	1/16W
R8030	1-216-180-00	RES-CHIP	180	5%	1/8W
R8031	1-218-879-11	METAL CHIP	22K	0.5%	1/10W
R8032	1-216-180-00	RES-CHIP	180	5%	1/8W
R8033	1-216-821-11	METAL CHIP	1K	5%	1/16W
R8034	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R8035	1-216-821-11	METAL CHIP	1K	5%	1/16W
R8036	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8037	1-216-797-11	METAL CHIP	10	5%	1/16W
R8038	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R8039	1-216-857-11	METAL CHIP	1M	5%	1/16W
R8041	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R8042	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8043	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8044	1-216-833-11	METAL CHIP	10K	5%	1/16W
R8045	1-216-833-11	METAL CHIP	10K	5%	1/16W
R8046	1-216-803-11	METAL CHIP	33	5%	1/16W
R8047	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8048	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8049	1-216-857-11	METAL CHIP	1M	5%	1/16W
R8050	1-216-836-11	METAL CHIP	18K	5%	1/16W
R8051	1-216-864-11	METAL CHIP	0	5%	1/16W
R8053	1-216-809-11	METAL CHIP	100	5%	1/16W
R8054	1-216-864-11	METAL CHIP	0	5%	1/16W
R8055	1-216-809-11	METAL CHIP	100	5%	1/16W
R8056	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8057	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R8058	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8059	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8060	1-216-803-11	METAL CHIP	33	5%	1/16W
R8061	1-216-803-11	METAL CHIP	33	5%	1/16W
R8062	1-216-821-11	METAL CHIP	1K	5%	1/16W
R8063	1-216-803-11	METAL CHIP	33	5%	1/16W
R8064	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8065	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8066	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8067	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8068	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8069	1-216-821-11	METAL CHIP	1K	5%	1/16W
R8070	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8071	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8072	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8073	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8074	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8075	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8076	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8077	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8079	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8080	1-216-864-11	METAL CHIP	0	5%	1/16W

Ref. No.	Part No.	Description			
R8100	1-216-797-11	METAL CHIP	10	5%	1/16W
R8201	1-216-180-00	RES-CHIP	180	5%	1/8W
R8202	1-216-180-00	RES-CHIP	180	5%	1/8W
R8203	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R8205	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8206	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8207	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8208	1-216-821-11	METAL CHIP	1K	5%	1/16W
R8209	1-216-821-11	METAL CHIP	1K	5%	1/16W
R8210	1-216-821-11	METAL CHIP	1K	5%	1/16W
R8211	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8212	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8213	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8214	1-216-845-11	METAL CHIP	100K	5%	1/16W
R8215	1-216-797-11	METAL CHIP	10	5%	1/16W
R8401	1-216-864-11	METAL CHIP	0	5%	1/16W
R9000	1-216-815-11	METAL CHIP	330	5%	1/16W
R9001	1-216-815-11	METAL CHIP	330	5%	1/16W
R9002	1-216-815-11	METAL CHIP	330	5%	1/16W
R9003	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R9004	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R9005	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R9006	1-216-838-11	METAL CHIP	27K	5%	1/16W
R9007	1-216-838-11	METAL CHIP	27K	5%	1/16W
R9008	1-216-821-11	METAL CHIP	1K	5%	1/16W
R9009	1-216-821-11	METAL CHIP	1K	5%	1/16W
R9010	1-216-817-11	METAL CHIP	470	5%	1/16W
R9011	1-216-837-11	METAL CHIP	22K	5%	1/16W
R9012	1-216-864-11	METAL CHIP	0	5%	1/16W
R9013	1-216-817-11	METAL CHIP	470	5%	1/16W
R9014	1-216-817-11	METAL CHIP	470	5%	1/16W
R9015	1-216-821-11	METAL CHIP	1K	5%	1/16W
R9016	1-216-295-91	SHORT	0		
R9017	1-216-821-11	METAL CHIP	1K	5%	1/16W
R9018	1-216-817-11	METAL CHIP	470	5%	1/16W
R9019	1-216-837-11	METAL CHIP	22K	5%	1/16W
R9021	1-216-864-11	METAL CHIP	0	5%	1/16W
R9022	1-216-817-11	METAL CHIP	470	5%	1/16W
R9023	1-216-817-11	METAL CHIP	470	5%	1/16W
R9024	1-216-864-11	METAL CHIP	0	5%	1/16W
R9025	1-216-864-11	METAL CHIP	0	5%	1/16W
R9027	1-216-821-11	METAL CHIP	1K	5%	1/16W
R9028	1-216-821-11	METAL CHIP	1K	5%	1/16W
R9029	1-216-817-11	METAL CHIP	470	5%	1/16W
R9030	1-216-837-11	METAL CHIP	22K	5%	1/16W
R9031	1-216-864-11	METAL CHIP	0	5%	1/16W
R9032	1-216-817-11	METAL CHIP	470	5%	1/16W
R9033	1-216-817-11	METAL CHIP	470	5%	1/16W
R9034	1-216-841-11	METAL CHIP	47K	5%	1/16W
R9035	1-216-841-11	METAL CHIP	47K	5%	1/16W
R9036	1-216-841-11	METAL CHIP	47K	5%	1/16W
R9037	1-216-841-11	METAL CHIP	47K	5%	1/16W
R9038	1-216-841-11	METAL CHIP	47K	5%	1/16W
R9039	1-216-841-11	METAL CHIP	47K	5%	1/16W
R9040	1-216-841-11	METAL CHIP	47K	5%	1/16W
R9041	1-216-841-11	METAL CHIP	47K	5%	1/16W
R9042	1-216-841-11	METAL CHIP	47K	5%	1/16W
R9043	1-216-841-11	METAL CHIP	47K	5%	1/16W
R9044	1-216-841-11	METAL CHIP	47K	5%	1/16W
R9045	1-216-841-11	METAL CHIP	47K	5%	1/16W
R9046	1-216-841-11	METAL CHIP	47K	5%	1/16W
R9047	1-216-841-11	METAL CHIP	47K	5%	1/16W
R9048	1-216-841-11	METAL CHIP	47K	5%	1/16W
R9049	1-216-841-11	METAL CHIP	47K	5%	1/16W
R9050	1-216-864-11	METAL CHIP	0	5%	1/16W
R9051	1-216-864-11	METAL CHIP	0	5%	1/16W
R9052	1-216-813-11	METAL CHIP	220	5%	1/16W
R9053	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R9054	1-216-838-11	METAL CHIP	27K	5%	1/16W
R9508	1-216-864-11	METAL CHIP	0	5%	1/16W
R9512	1-216-864-11	METAL CHIP	0	5%	1/16W
R9513	1-216-864-11	METAL CHIP	0	5%	1/16W
R9514	1-216-864-11	METAL CHIP	0	5%	1/16W
R9516	1-216-833-11	METAL CHIP	10K	5%	1/16W
R9517	1-216-864-11	METAL CHIP	0	5%	1/16W
R9518	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R9519	1-216-864-11	METAL CHIP	0	5%	1/16W
R9527	1-216-864-11	METAL CHIP	0	5%	1/16W
R9532	1-216-864-11	METAL CHIP	0	5%	1/16W
		< VIBRATOR >			
X8000	1-767-399-11	VIBRATOR, CRYSTAL (24.576MHz)			
X8001	1-579-128-11	VIBRATOR, CRYSTAL (4.608MHz)			

Ref. No.	Part No.	Description			
	A-7078-206-A	DL-062 BOARD, COMPLETE ***********************			
		< CAPACITOR >			
C601	1-113-682-11	TANTAL. CHIP	33uF	20%	10V
C602	1-164-346-11	CERAMIC CHIP	1uF		16V
		< CONNECTOR >			
* CN601	1-580-056-21	PIN, CONNECTOR (SMD) 3P			
		< DIODE >			
D601	8-719-067-40	DIODE STZ6.8N-T146			
		< IC >			
IC601	8-749-923-29	IC RS-20E-T			
		< RESISTOR >			
R601	1-216-864-11	METAL CHIP	0	5%	1/16W
R602	1-216-864-11	METAL CHIP	0	5%	1/16W

Ref. No.	Part No.	Description
	A-7078-221-A	DV-032 BOARD, COMPLETE ***********************
		< CONNECTOR >
* CN202	1-564-005-11	PIN, CONNECTOR 6P
CN203	1-779-369-11	CONNECTOR, SQUARE TYPE (INDI) 4P (DV)

Ref. No.	Part No.	Description
	A-7078-226-A	FC-087 BOARD, COMPLETE ************************
* CN800	1-580-056-21	PIN, CONNECTOR (SMD) 3P
		< SWITCH >
S810	1-762-946-12	SWITCH, PUSH (1 KEY) (CLOSE)

Ref. No.	Part No.	Description
S811	1-762-947-12	SWITCH, PUSH (1 KEY) (OPEN)

Ref. No.	Part No.	Description
	A-7078-207-A	FM-037 BOARD, COMPLETE ************************
		< CAPACITOR >
C701	1-162-974-11	CERAMIC CHIP 0.01uF 50V
		< CONNECTOR >
* CN701	1-580-055-21	PIN, CONNECTOR (SMD) 2P

Ref. No.	Part No.	Description
	A-7078-201-A	FR-183 BOARD, COMPLETE ************************
		< CAPACITOR >
C405	1-164-505-11	CERAMIC CHIP 2.2uF 16V
C409	1-164-360-11	CERAMIC CHIP 0.1uF 16V
C410	1-164-360-11	CERAMIC CHIP 0.1uF 16V
C411	1-164-360-11	CERAMIC CHIP 0.1uF 16V
C412	1-164-360-11	CERAMIC CHIP 0.1uF 16V
C413	1-164-505-11	CERAMIC CHIP 2.2uF 16V
C414	1-164-346-11	CERAMIC CHIP 1uF 16V
C415	1-164-346-11	CERAMIC CHIP 1uF 16V
C416	1-164-346-11	CERAMIC CHIP 1uF 16V
C417	1-164-360-11	CERAMIC CHIP 0.1uF 16V
C432	1-164-156-11	CERAMIC CHIP 0.1uF 25V
		< CONNECTOR >
CN401	1-774-770-11	CONNECTOR, FFC/FPC 30P
* CN402	1-573-768-21	PIN, CONNECTOR (1.5mm) (SMD) 5P
		< DIODE >
D401	8-719-067-40	DIODE STZ6.8N-T146
D402	8-719-067-40	DIODE STZ6.8N-T146
D403	8-719-067-40	DIODE STZ6.8N-T146
D404	8-719-049-09	DIODE 1SS367-T3SONY
D405	8-719-049-09	DIODE 1SS367-T3SONY
D406	8-719-049-09	DIODE 1SS367-T3SONY
D407	8-719-049-09	DIODE 1SS367-T3SONY
D408	8-719-049-09	DIODE 1SS367-T3SONY
D409	8-719-049-09	DIODE 1SS367-T3SONY
D410	8-719-049-09	DIODE 1SS367-T3SONY
D411	8-719-049-09	DIODE 1SS367-T3SONY
D412	8-719-988-61	DIODE 1SS355TE-17
D413	8-719-988-61	DIODE 1SS355TE-17
D414	8-719-988-61	DIODE 1SS355TE-17
D415	8-719-988-61	DIODE 1SS355TE-17
D416	8-719-988-61	DIODE 1SS355TE-17
D417	8-719-988-61	DIODE 1SS355TE-17
D418	8-719-067-40	DIODE STZ6.8N-T146
D421	8-719-988-61	DIODE 1SS355TE-17
D422	8-719-988-61	DIODE 1SS355TE-17
D423	8-719-988-61	DIODE 1SS355TE-17
D424	8-719-988-61	DIODE 1SS355TE-17
D425	8-719-988-61	DIODE 1SS355TE-17
D426	8-719-988-61	DIODE 1SS355TE-17
D427	8-719-988-61	DIODE 1SS355TE-17
D428	8-719-988-61	DIODE 1SS355TE-17
D430	8-719-988-61	DIODE 1SS355TE-17
D432	8-719-067-40	DIODE STZ6.8N-T146
D433	8-719-067-40	DIODE STZ6.8N-T146
D434	8-719-067-40	DIODE STZ6.8N-T146
D435	8-719-067-40	DIODE STZ6.8N-T146
D436	8-719-067-40	DIODE STZ6.8N-T146
D437	8-719-067-40	DIODE STZ6.8N-T146
D438	8-719-067-40	DIODE STZ6.8N-T146
D439	8-719-067-40	DIODE STZ6.8N-T146
D441	8-719-067-40	DIODE STZ6.8N-T146
D442	8-719-078-90	DIODE CL-165HR/G1-D-T (POWER (ON/STANDBY))
D443	8-719-082-46	DIODE TLYE1002A (T02, SOY) (📼)
D444	8-719-082-46	DIODE TLYE1002A (T02, SOY) (REW ◀◀)
D445	8-719-082-46	DIODE TLYE1002A (T02, SOY) (FF ▶▶)
D446	8-719-082-46	DIODE TLYE1002A (T02, SOY) (PAUSE ❚❚)
D447	8-719-026-34	DIODE CL-170UR-CD-T (REC ●)
D449	8-719-082-46	DIODE TLYE1002A (T02, SOY) (DVCAM)
D450	8-719-082-46	DIODE TLYE1002A (T02, SOY) (AUDIO DUB)
D451	8-719-082-46	DIODE TLYE1002A (T02, SOY) (DUP)
D452	8-719-082-48	DIODE TLPGE1002A (T02, SOY) (PLAY ▶)
		< FERRITE BEAD >
FB402	1-414-445-11	FERRITE 0uH
		< IC >
IC401	8-759-438-82	IC uPD16311GC-AB6
IC403	8-759-388-63	IC NJU7064V (TE2)
IC404	8-759-196-96	IC TC7SH08FU-TE85R
		< DIODE >
ND401	6-500-117-01	DIODE LA-301VL1
ND402	6-500-117-01	DIODE LA-301VL1
ND403	6-500-117-01	DIODE LA-301VL1
ND404	6-500-117-01	DIODE LA-301VL1
ND405	6-500-117-01	DIODE LA-301VL1
ND406	6-500-117-01	DIODE LA-301VL1
ND407	6-500-117-01	DIODE LA-301VL1
ND408	6-500-117-01	DIODE LA-301VL1
		< TRANSISTOR >
Q401	8-729-041-24	TRANSISTOR NDS355AN
Q402	8-729-041-24	TRANSISTOR NDS355AN
Q403	8-729-041-24	TRANSISTOR NDS355AN
Q404	8-729-041-24	TRANSISTOR NDS355AN
Q405	8-729-041-24	TRANSISTOR NDS355AN
Q406	8-729-041-24	TRANSISTOR NDS355AN
Q407	8-729-041-24	TRANSISTOR NDS355AN
Q408	8-729-041-24	TRANSISTOR NDS355AN
Q409	8-729-041-24	TRANSISTOR NDS355AN
Q410	8-729-041-24	TRANSISTOR NDS355AN
Q411	8-729-048-50	TRANSISTOR 2SK3018-T106
Q412	8-729-048-50	TRANSISTOR 2SK3018-T106
Q413	8-729-048-50	TRANSISTOR 2SK3018-T106
Q414	8-729-048-50	TRANSISTOR 2SK3018-T106
Q415	8-729-048-50	TRANSISTOR 2SK3018-T106
Q416	8-729-048-50	TRANSISTOR 2SK3018-T106
Q417	8-729-048-50	TRANSISTOR 2SK3018-T106
Q418	8-729-048-50	TRANSISTOR 2SK3018-T106

Ref. No.	Part No.	Description			
		< RESISTOR >			
R402	1-216-809-11	METAL CHIP	100	5%	1/16W
R403	1-216-809-11	METAL CHIP	100	5%	1/16W
R404	1-216-809-11	METAL CHIP	100	5%	1/16W
R405	1-216-809-11	METAL CHIP	100	5%	1/16W
R406	1-216-864-11	METAL CHIP	0	5%	1/16W
R407	1-216-864-11	METAL CHIP	0	5%	1/16W
R408	1-216-864-11	METAL CHIP	0	5%	1/16W
R409	1-216-864-11	METAL CHIP	0	5%	1/16W
R410	1-216-166-00	RES-CHIP	47	5%	1/8W
R421	1-216-797-11	METAL CHIP	10	5%	1/16W
R422	1-216-797-11	METAL CHIP	10	5%	1/16W
R423	1-216-797-11	METAL CHIP	10	5%	1/16W
R424	1-216-797-11	METAL CHIP	10	5%	1/16W
R425	1-216-797-11	METAL CHIP	10	5%	1/16W
R426	1-216-797-11	METAL CHIP	10	5%	1/16W
R427	1-216-797-11	METAL CHIP	10	5%	1/16W
R428	1-216-797-11	METAL CHIP	10	5%	1/16W
R429	1-216-797-11	METAL CHIP	10	5%	1/16W
R430	1-216-797-11	METAL CHIP	10	5%	1/16W
R431	1-216-797-11	METAL CHIP	10	5%	1/16W
R432	1-216-797-11	METAL CHIP	10	5%	1/16W
R433	1-216-797-11	METAL CHIP	10	5%	1/16W
R434	1-216-797-11	METAL CHIP	10	5%	1/16W
R435	1-216-797-11	METAL CHIP	10	5%	1/16W
R436	1-216-797-11	METAL CHIP	10	5%	1/16W
R437	1-216-797-11	METAL CHIP	10	5%	1/16W
R438	1-216-797-11	METAL CHIP	10	5%	1/16W
R439	1-216-178-00	RES-CHIP	150	5%	1/8W
R440	1-216-178-00	RES-CHIP	150	5%	1/8W
R441	1-216-178-00	RES-CHIP	150	5%	1/8W
R442	1-216-178-00	RES-CHIP	150	5%	1/8W
R443	1-216-178-00	RES-CHIP	150	5%	1/8W
R444	1-216-178-00	RES-CHIP	150	5%	1/8W
R445	1-216-178-00	RES-CHIP	150	5%	1/8W
R446	1-216-178-00	RES-CHIP	150	5%	1/8W
R447	1-216-172-00	METAL CHIP	82	5%	1/8W
R448	1-216-172-00	METAL CHIP	82	5%	1/8W
R449	1-216-172-00	METAL CHIP	82	5%	1/8W
R450	1-216-172-00	METAL CHIP	82	5%	1/8W
R451	1-216-162-00	RES-CHIP	33	5%	1/8W
R456	1-216-158-00	RES-CHIP	22	5%	1/8W
R457	1-216-842-11	METAL CHIP	56K	5%	1/16W
R458	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R459	1-216-833-11	METAL CHIP	10K	5%	1/16W
R460	1-216-833-11	METAL CHIP	10K	5%	1/16W
R461	1-216-833-11	METAL CHIP	10K	5%	1/16W
R462	1-216-833-11	METAL CHIP	10K	5%	1/16W
R467	1-216-198-91	RES-CHIP	1K	5%	1/8W
R468	1-216-198-91	RES-CHIP	1K	5%	1/8W
R469	1-216-204-00	RES-CHIP	1.8K	5%	1/8W
R470	1-216-296-11	SHORT	0		
R471	1-216-864-11	METAL CHIP	0	5%	1/16W
R474	1-216-864-11	METAL CHIP	0	5%	1/16W
R476	1-216-295-91	SHORT	0		
		< VARIABLE RESISTOR >			
RV401	1-223-649-11	RES, VAR, CARBON 20K (AUDIO REC LEVEL (CH-1))			

Ref. No.	Part No.	Description
RV402	1-223-649-11	RES, VAR, CARBON 20K (AUDIO REC LEVEL (CH-2))
RV403	1-223-649-11	RES, VAR, CARBON 20K (AUDIO REC LEVEL (CH-3))
RV404	1-223-649-11	RES, VAR, CARBON 20K (AUDIO REC LEVEL (CH-4))
		< SWITCH >
S401	1-572-725-11	SWITCH, TACTILE (POWER (ON/STANDBY))
S402	1-692-838-21	SWITCH, TACTILE (RUBBER) (EJECT ⏏ (OPEN/CLOSE))
S403	1-692-088-41	SWITCH, TACTILE (RESET)
S404	1-692-838-21	SWITCH, TACTILE (RUBBER) (REW ◀◀)
S405	1-692-838-21	SWITCH, TACTILE (RUBBER) (PLAY ▶)
S406	1-692-838-21	SWITCH, TACTILE (RUBBER) (FF ▶▶)
S407	1-692-838-21	SWITCH, TACTILE (RUBBER) (REC ●)
S408	1-692-838-21	SWITCH, TACTILE (RUBBER) (STOP ■)
S409	1-692-838-21	SWITCH, TACTILE (RUBBER) (PAUSE ❚❚)
S410	1-692-838-21	SWITCH, TACTILE (RUBBER) (AUDIO DUB)
S411	1-692-838-21	SWITCH, TACTILE (RUBBER) (DUP)
S412	1-571-787-41	SWITCH, TACTILE (END SEARCH)
S413	1-571-787-41	SWITCH, TACTILE (INDEX)
S414	1-571-787-41	SWITCH, TACTILE (RESET (COUNTER))
S415	1-572-725-11	SWITCH, TACTILE (⇧)
S416	1-572-725-11	SWITCH, TACTILE (⇩)
S417	1-572-725-11	SWITCH, TACTILE (EXEC, FINE (AUDIO))
S418	1-572-342-11	SWITCH, SLIDE (COUNTER SELECT)
S419	1-572-342-11	SWITCH, SLIDE (AUDIO MONITOR)
S420	1-572-342-11	SWITCH, SLIDE (DISPLAY SELECT)
S421	1-572-342-11	SWITCH, SLIDE (CHARACTER DISPLAY (LCD))
S422	1-572-272-11	SWITCH, SLIDE (AUDIO INPUT)
S423	1-572-272-11	SWITCH, SLIDE (CHARACTER DISPLAY (MONITOR OUT))
S424	1-572-342-11	SWITCH, SLIDE (TIMER)
S425	1-572-272-11	SWITCH, SLIDE (REMOTE/LOCAL)
S427	1-572-011-11	SWITCH, SLIDE (INPUT SELECT)

Ref. No.	Part No.	Description			
	A-7078-200-A	HP-135 BOARD, COMPLETE ************************			
		< CAPACITOR >			
C301	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C302	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C303	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C304	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
		< CONNECTOR >			
CN301	1-566-524-21	CONNECTOR, FPC (ZIF) 8P			
		< DIODE >			
D301	8-719-421-59	DIODE MA3075WA- (TX)			
D302	8-719-421-59	DIODE MA3075WA- (TX)			
		< FERRITE BEAD >			
FB301	1-500-241-22	FERRITE	0uH		
FB302	1-500-241-22	FERRITE	0uH		
		< IC >			
IC301	8-759-369-73	IC NJM4556AM-A-TE2			

HP-135 JC-21

Ref. No.	Part No.	Description			
		< JACK >			
J301	1-566-822-31	JACK (PHONES)			
		< TRANSISTOR >			
Q301	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-B		
Q302	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-B		
		< RESISTOR >			
R301	1-216-833-11	METAL CHIP	10K	5%	1/16W
R302	1-216-833-11	METAL CHIP	10K	5%	1/16W
R303	1-216-833-11	METAL CHIP	10K	5%	1/16W
R304	1-216-837-11	METAL CHIP	22K	5%	1/16W
R305	1-216-833-11	METAL CHIP	10K	5%	1/16W
R306	1-216-833-11	METAL CHIP	10K	5%	1/16W
R307	1-216-837-11	METAL CHIP	22K	5%	1/16W
R308	1-216-833-11	METAL CHIP	10K	5%	1/16W
R309	1-216-801-11	METAL CHIP	22	5%	1/16W
R310	1-216-801-11	METAL CHIP	22	5%	1/16W
R311	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R312	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
		< VARIABLE RESISTOR >			
RV301	1-223-525-11	RES, VAR, CARBON 10K/10K (PHONE LEVEL)			

Ref. No.	Part No.	Description			
	A-7095-083-A	JC-21 BOARD, COMPLETE **********************			
		< CAPACITOR >			
C1000	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1001	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1002	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C1003	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1004	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1005	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C1006	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1007	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1008	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C1100	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1101	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1102	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1103	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C1104	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1106	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C1107	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1109	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V
C1110	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V
C1111	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C1112	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C1113	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C1114	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C1115	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C1116	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C1117	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1118	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1119	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1123	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C1124	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1125	1-162-974-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description			
C1126	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1127	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1128	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1129	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1130	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V
C1131	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1132	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1133	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1134	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1135	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1136	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V
C1137	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1138	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1139	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1140	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1141	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1142	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1143	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1144	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1145	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1146	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1147	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1148	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1149	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1150	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1151	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1152	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1154	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1156	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1158	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1162	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1163	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1164	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1165	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1166	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1167	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1168	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1169	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1170	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1171	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1172	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1173	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C1174	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1175	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1176	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1177	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1178	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1179	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1181	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1182	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1183	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1184	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C1185	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1186	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1187	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V
C1188	1-128-964-91	TANTAL. CHIP	100uF	20%	6.3V
C1189	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1190	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C1191	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C1192	1-164-360-11	CERAMIC CHIP	0.1uF		16V

Ref. No.	Part No.	Description			
C1194	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C1195	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C1196	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C1197	1-115-156-11	CERAMIC CHIP	1uF		10V
C2200	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C2201	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C2202	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C2203	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C2204	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C2205	1-164-357-11	CERAMIC CHIP	0.001uF	5%	50V
C2206	1-110-569-21	TANTAL. CHIP	47uF	20%	4V
C2207	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C2208	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C2209	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C2210	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C2211	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C2212	1-164-357-11	CERAMIC CHIP	0.001uF	5%	50V
C2213	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C2214	1-164-357-11	CERAMIC CHIP	0.001uF	5%	50V
C2215	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2216	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C2217	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2218	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C2219	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C2220	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C2222	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C2224	1-104-912-11	TANTAL. CHIP	3.3uF	20%	16V
C2226	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C2227	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C2228	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C2233	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C2235	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C2236	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C2238	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C2239	1-115-156-11	CERAMIC CHIP	1uF		10V
C2240	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2241	1-115-156-11	CERAMIC CHIP	1uF		10V
C2242	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2244	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2245	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C2246	1-162-961-11	CERAMIC CHIP	330PF	10%	50V
C3300	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C3301	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C3302	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C3303	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C3304	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C3305	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C3306	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C3307	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C3308	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C3309	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C3310	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C3312	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C3313	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C3314	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C4400	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C4401	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C4402	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C4403	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4404	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C4405	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4406	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4407	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C4408	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C4410	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C4411	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C4412	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C4413	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C4414	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4415	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C4416	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C4418	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C4420	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C4421	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C4422	1-164-816-11	CERAMIC CHIP	220PF	2%	50V
C5002	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5003	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5004	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C5005	1-113-994-11	TANTAL. CHIP	6.8uF	20%	16V
C5006	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5007	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C5008	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C5009	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C5011	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C5012	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5013	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5014	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5015	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5016	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C6004	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C6005	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C6006	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C6007	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C6008	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C6009	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C6010	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C6011	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C6012	1-164-156-11	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN1100	1-506-474-11	PIN, CONNECTOR 9P			
CN1101	1-774-770-11	CONNECTOR, FFC/FPC 30P			
* CN4400	1-564-005-11	PIN, CONNECTOR 6P			
CN4401	1-691-386-11	CONNECTOR, FFC/FPC 22P			
CN4402	1-691-386-11	CONNECTOR, FFC/FPC 22P			
CN5005	1-778-637-21	CONNECTOR, FFC/FPC (ZIF) 50P			
CN6001	1-774-770-11	CONNECTOR, FFC/FPC 30P			
CN6002	1-750-303-41	CONNECTOR, BOARD TO BOARD 20P			
* CN7001	1-691-591-11	PIN, CONNECTOR (1.5mm) (SMD) 8P			
CN7002	1-774-770-11	CONNECTOR, FFC/FPC 30P			
* CN8001	1-785-551-21	CONNECTOR, BOARD TO BOARD 120P			
		< TRIMMER >			
CT2200	1-141-423-61	CAP, ADJ 20PF (AFC)			
CT3300	1-141-422-11	CAP, ADJ 10PF (VFD SPCK)			
		< DIODE >			
D2201	8-719-041-39	DIODE KV1470TL00			
D4400	8-719-055-86	DIODE KV1470TL1-3			
D5001	8-719-421-67	DIODE MA132WK-TX			

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Ref. No.	Part No.	Description			
		< FILTER >			
FL1100	1-233-345-21	FILTER, LOW PASS (5.5MHz)			
FL1101	1-233-345-21	FILTER, LOW PASS (5.5MHz)			
FL1102	1-233-345-21	FILTER, LOW PASS (5.5MHz)			
FL1103	1-233-345-21	FILTER, LOW PASS (5.5MHz)			
FL1104	1-233-345-21	FILTER, LOW PASS (5.5MHz)			
		< IC >			
IC1000	8-759-449-58	IC	LM7131BCM5X		
IC1001	8-759-449-58	IC	LM7131BCM5X		
IC1002	8-759-449-58	IC	LM7131BCM5X		
IC1100	8-759-477-81	IC	TK11220BMCL		
IC1101	8-759-523-03	IC	TC74HC4066AFT (EL)		
IC1102	8-759-338-78	IC	BA10324AFV-E2		
IC1103	8-759-338-78	IC	BA10324AFV-E2		
IC1104	8-759-338-78	IC	BA10324AFV-E2		
IC1105	8-759-510-71	IC	BA10358F-E2		
IC1106	8-759-338-78	IC	BA10324AFV-E2		
IC1107	8-759-359-51	IC	NJM431M (TE2)		
IC1108	8-752-352-09	IC	CXD2300Q-T4		
IC1109	8-752-352-09	IC	CXD2300Q-T4		
IC1110	8-752-352-09	IC	CXD2300Q-T4		
IC1111	8-759-449-58	IC	LM7131BCM5X		
IC1112	8-759-449-58	IC	LM7131BCM5X		
IC1113	8-759-157-22	IC	PQ05TZ1U		
IC2200	8-759-368-81	IC	TK11630UTL		
IC2202	8-759-485-79	IC	TC7SET08FU (TE85R)		
IC2203	8-759-523-97	IC	TC74VHC123AFT (EL)		
IC2204	8-759-343-09	IC	CXD2193AR-ER		
IC2208	8-759-196-93	IC	TC7SH00FU-TE85R		
IC2209	8-759-524-27	IC	TC74VHC244FT (EL)		
IC2210	8-759-271-86	IC	TC7SH04FU-TE85R		
IC2211	8-759-196-96	IC	TC7SH08FU-TE85R		
IC2212	8-759-196-93	IC	TC7SH00FU-TE85R		
IC2213	8-759-447-77	IC	TC7WH74FU (TE12R)		
IC2214	8-759-524-41	IC	TC74VHC374FT (EL)		
IC2215	8-759-524-50	IC	TC74VHC541FT (EL)		
IC3300	8-759-570-60	IC	M65511AFP-R60S		
IC3301	8-759-058-60	IC	TC7SU04FU (TE85R)		
IC3302	8-759-531-92	IC	TC7WH04FU (TE12R)		
IC3303	6-801-126-01	IC	MB90097PFV-G-146-BND-ER		
IC4400	8-759-570-61	IC	HG73C050TETL		
IC4401	8-752-390-00	IC	CXD3129R-T6		
IC4402	8-759-566-52	IC	SN104266PN-TEB		
IC5001	8-759-512-69	IC	S-81350HG-KD-T1		
IC5002	8-759-427-85	IC	MB88146APFV-G-BND-ER		
IC5003	6-801-574-01	IC	MB91192PFF-G-151-BND-ER		
IC5006	8-759-445-94	IC	AK6480AM-E2		
IC5007	8-759-443-08	IC	TC7W241FU-TE12R		
IC5008	8-759-523-81	IC	TC74VHC08FT (EL)		
IC6001	8-752-930-80	IC	CXP921064A-064R-T6		
IC6003	8-759-475-45	IC	TC74LCX157FT (EL)		
IC6004	8-759-058-58	IC	TC7S04FU (TE85R)		
		< RESISTOR >			
JS7001	1-216-864-11	METAL CHIP	0	5%	1/16W
JS7002	1-216-864-11	METAL CHIP	0	5%	1/16W
JS7003	1-216-864-11	METAL CHIP	0	5%	1/16W
JS7004	1-216-864-11	METAL CHIP	0	5%	1/16W

Ref. No.	Part No.	Description	
		< COIL >	
L1000	1-414-760-21	FERRITE	0uH
L1001	1-414-760-21	FERRITE	0uH
L1101	1-414-760-21	FERRITE	0uH
L1107	1-414-760-21	FERRITE	0uH
L1108	1-414-398-11	INDUCTOR	10uH
L1109	1-414-398-11	INDUCTOR	10uH
L1110	1-414-398-11	INDUCTOR	10uH
L1111	1-414-398-11	INDUCTOR	10uH
L1112	1-414-398-11	INDUCTOR	10uH
L1113	1-414-398-11	INDUCTOR	10uH
L1114	1-414-398-11	INDUCTOR	10uH
L1115	1-414-398-11	INDUCTOR	10uH
L1116	1-414-398-11	INDUCTOR	10uH
L1122	1-414-760-21	FERRITE	0uH
L2200	1-410-390-11	INDUCTOR CHIP	56uH
L2201	1-410-655-31	INDUCTOR CHIP	120uH
L2202	1-414-398-11	INDUCTOR	10uH
L2203	1-414-398-11	INDUCTOR	10uH
L2204	1-411-275-21	COIL, VARIABLE	
L2205	1-414-398-11	INDUCTOR	10uH
L3300	1-414-398-11	INDUCTOR	10uH
L3301	1-414-398-11	INDUCTOR	10uH
L3302	1-414-398-11	INDUCTOR	10uH
L3303	1-414-398-11	INDUCTOR	10uH
L4400	1-414-398-11	INDUCTOR	10uH
L4401	1-414-398-11	INDUCTOR	10uH
L4402	1-414-398-11	INDUCTOR	10uH
L4403	1-410-371-41	INDUCTOR	1.5uH
L4404	1-414-754-11	INDUCTOR	10uH
L5001	1-414-754-11	INDUCTOR	10uH
L5002	1-414-751-11	INDUCTOR	1uH
L6001	1-414-754-11	INDUCTOR	10uH
L6003	1-414-751-11	INDUCTOR	1uH
L6007	1-414-760-21	FERRITE	0uH
L6008	1-414-760-21	FERRITE	0uH
L6010	1-414-760-21	FERRITE	0uH
L6011	1-414-760-21	FERRITE	0uH
L6012	1-414-760-21	FERRITE	0uH
L6014	1-414-760-21	FERRITE	0uH
		< TRANSISTOR >	
Q1100	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
Q1101	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
Q1103	8-729-905-35	TRANSISTOR	2SC4081T106R
Q1104	8-729-905-35	TRANSISTOR	2SC4081T106R
Q1109	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
Q1111	8-729-905-35	TRANSISTOR	2SC4081T106R
Q1112	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
Q1114	8-729-905-35	TRANSISTOR	2SC4081T106R
Q1116	8-729-402-42	TRANSISTOR	UN5213-TX
Q1117	8-729-905-35	TRANSISTOR	2SC4081T106R
Q1118	8-729-905-35	TRANSISTOR	2SC4081T106R
Q1119	8-729-905-35	TRANSISTOR	2SC4081T106R
Q1120	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-B
Q1121	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-B
Q1122	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-B
Q1123	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
Q1124	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
Q1125	8-729-026-52	TRANSISTOR	2SA1576A-T106-R

Ref. No.	Part No.	Description			
Q1126	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q1127	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q1128	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q1129	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q1130	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q1131	8-729-046-75	TRANSISTOR	SI2301DS-T1		
Q1132	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q2200	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q2201	8-729-026-52	TRANSISTOR	2SA1576A-T106-R		
Q2202	8-729-427-74	TRANSISTOR	XP4601-TXE		
Q2203	8-729-402-42	TRANSISTOR	UN5213-TX		
Q3300	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO		
Q3301	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO		
Q3302	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO		
Q5001	8-729-141-48	TRANSISTOR	2SB624-T1BV4		
Q5002	8-729-402-42	TRANSISTOR	UN5213-TX		
Q6003	8-729-037-61	TRANSISTOR	UN9113J- (K8).SO		
Q6004	8-729-427-70	TRANSISTOR	XP4401-TXE		
Q6005	8-729-141-48	TRANSISTOR	2SB624-T1BV4		
Q6011	8-729-402-42	TRANSISTOR	UN5213-TX		
Q6012	8-729-402-42	TRANSISTOR	UN5213-TX		
		< RESISTOR >			
R1000	1-216-864-11	METAL CHIP	0	5%	1/16W
R1001	1-216-820-11	METAL CHIP	820	5%	1/16W
R1002	1-216-820-11	METAL CHIP	820	5%	1/16W
R1004	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1005	1-216-864-11	METAL CHIP	0	5%	1/16W
R1006	1-216-864-11	METAL CHIP	0	5%	1/16W
R1007	1-216-820-11	METAL CHIP	820	5%	1/16W
R1008	1-216-820-11	METAL CHIP	820	5%	1/16W
R1010	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1011	1-216-864-11	METAL CHIP	0	5%	1/16W
R1012	1-216-864-11	METAL CHIP	0	5%	1/16W
R1013	1-216-820-11	METAL CHIP	820	5%	1/16W
R1014	1-216-820-11	METAL CHIP	820	5%	1/16W
R1015	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1019	1-216-809-11	METAL CHIP	100	5%	1/16W
R1020	1-216-809-11	METAL CHIP	100	5%	1/16W
R1021	1-216-809-11	METAL CHIP	100	5%	1/16W
R1102	1-216-797-11	METAL CHIP	10	5%	1/16W
R1103	1-216-797-11	METAL CHIP	10	5%	1/16W
R1104	1-216-797-11	METAL CHIP	10	5%	1/16W
R1105	1-216-797-11	METAL CHIP	10	5%	1/16W
R1107	1-216-797-11	METAL CHIP	10	5%	1/16W
R1108	1-216-813-11	METAL CHIP	220	5%	1/16W
R1109	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1111	1-216-813-11	METAL CHIP	220	5%	1/16W
R1112	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1113	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1114	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R1115	1-216-797-11	METAL CHIP	10	5%	1/16W
R1116	1-216-817-11	METAL CHIP	470	5%	1/16W
R1117	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1118	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1119	1-216-797-11	METAL CHIP	10	5%	1/16W
R1120	1-216-817-11	METAL CHIP	470	5%	1/16W
R1121	1-216-797-11	METAL CHIP	10	5%	1/16W
R1122	1-216-797-11	METAL CHIP	10	5%	1/16W
R1123	1-216-821-11	METAL CHIP	1K	5%	1/16W

Ref. No.	Part No.	Description			
R1125	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R1127	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1129	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1134	1-216-817-11	METAL CHIP	470	5%	1/16W
R1136	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1139	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1143	1-216-817-11	METAL CHIP	470	5%	1/16W
R1150	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1151	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1152	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1153	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1154	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1155	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1156	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1158	1-216-864-11	METAL CHIP	0	5%	1/16W
R1159	1-216-864-11	METAL CHIP	0	5%	1/16W
R1160	1-216-864-11	METAL CHIP	0	5%	1/16W
R1164	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R1165	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1166	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1167	1-216-809-11	METAL CHIP	100	5%	1/16W
R1168	1-216-809-11	METAL CHIP	100	5%	1/16W
R1169	1-216-809-11	METAL CHIP	100	5%	1/16W
R1170	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1171	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1172	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1173	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1175	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R1176	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1177	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1178	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1179	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1180	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1181	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1182	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1183	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1184	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1185	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1186	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R1187	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R1188	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R1190	1-216-835-11	METAL CHIP	15K	5%	1/16W
R1191	1-216-809-11	METAL CHIP	100	5%	1/16W
R1192	1-216-809-11	METAL CHIP	100	5%	1/16W
R1193	1-216-809-11	METAL CHIP	100	5%	1/16W
R1194	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1196	1-216-835-11	METAL CHIP	15K	5%	1/16W
R1197	1-216-864-11	METAL CHIP	0	5%	1/16W
R1198	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R1199	1-216-835-11	METAL CHIP	15K	5%	1/16W
R1200	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R1201	1-216-805-11	METAL CHIP	47	5%	1/16W
R1202	1-216-816-11	METAL CHIP	390	5%	1/16W
R1203	1-216-864-11	METAL CHIP	0	5%	1/16W
R1204	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R1205	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1206	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1207	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1208	1-216-864-11	METAL CHIP	0	5%	1/16W
R1209	1-216-821-11	METAL CHIP	1K	5%	1/16W

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Ref. No.	Part No.	Description			
R1210	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1211	1-216-864-11	METAL CHIP	0	5%	1/16W
R1212	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R1213	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1214	1-216-817-11	METAL CHIP	470	5%	1/16W
R1215	1-216-864-11	METAL CHIP	0	5%	1/16W
R1216	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1217	1-216-817-11	METAL CHIP	470	5%	1/16W
R1218	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R1219	1-216-864-11	METAL CHIP	0	5%	1/16W
R1221	1-216-864-11	METAL CHIP	0	5%	1/16W
R1222	1-216-864-11	METAL CHIP	0	5%	1/16W
R1223	1-216-864-11	METAL CHIP	0	5%	1/16W
R1229	1-216-864-11	METAL CHIP	0	5%	1/16W
R1230	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1231	1-216-849-11	METAL CHIP	220K	5%	1/16W
R1232	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1233	1-216-835-11	METAL CHIP	15K	5%	1/16W
R1236	1-216-295-91	SHORT	0		
R1237	1-216-295-91	SHORT	0		
R2200	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2201	1-216-840-11	METAL CHIP	39K	5%	1/16W
R2202	1-216-864-11	METAL CHIP	0	5%	1/16W
R2203	1-216-821-11	METAL CHIP	1K	5%	1/16W
R2204	1-216-817-11	METAL CHIP	470	5%	1/16W
R2205	1-216-817-11	METAL CHIP	470	5%	1/16W
R2206	1-216-821-11	METAL CHIP	1K	5%	1/16W
R2210	1-216-864-11	METAL CHIP	0	5%	1/16W
R2212	1-216-864-11	METAL CHIP	0	5%	1/16W
R2213	1-218-863-11	METAL CHIP	4.7K	0.5%	1/10W
R2215	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2217	1-216-864-11	METAL CHIP	0	5%	1/16W
R2218	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R2219	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R2220	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R2221	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2222	1-216-814-11	METAL CHIP	270	5%	1/16W
R2223	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2224	1-218-851-11	METAL CHIP	1.5K	0.5%	1/10W
R2225	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R2226	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2227	1-216-814-11	METAL CHIP	270	5%	1/16W
R2228	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2229	1-216-864-11	METAL CHIP	0	5%	1/16W
R2230	1-216-855-11	METAL CHIP	680K	5%	1/16W
R2233	1-216-839-11	METAL CHIP	33K	5%	1/16W
R2234	1-216-864-11	METAL CHIP	0	5%	1/16W
R2235	1-216-839-11	METAL CHIP	33K	5%	1/16W
R2236	1-216-864-11	METAL CHIP	0	5%	1/16W
R2237	1-216-839-11	METAL CHIP	33K	5%	1/16W
R2238	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2239	1-216-821-11	METAL CHIP	1K	5%	1/16W
R2240	1-216-839-11	METAL CHIP	33K	5%	1/16W
R2246	1-216-864-11	METAL CHIP	0	5%	1/16W
R2247	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2250	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2252	1-216-864-11	METAL CHIP	0	5%	1/16W
R2253	1-216-864-11	METAL CHIP	0	5%	1/16W
R2255	1-216-864-11	METAL CHIP	0	5%	1/16W
R2256	1-216-864-11	METAL CHIP	0	5%	1/16W
R2257	1-216-864-11	METAL CHIP	0	5%	1/16W
R2258	1-216-864-11	METAL CHIP	0	5%	1/16W
R2259	1-216-864-11	METAL CHIP	0	5%	1/16W
R2261	1-216-844-11	METAL CHIP	82K	5%	1/16W
R2262	1-216-844-11	METAL CHIP	82K	5%	1/16W
R2263	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2264	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2265	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2266	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2267	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2268	1-216-864-11	METAL CHIP	0	5%	1/16W
R2269	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2270	1-216-864-11	METAL CHIP	0	5%	1/16W
R3300	1-216-864-11	METAL CHIP	0	5%	1/16W
R3301	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R3303	1-216-864-11	METAL CHIP	0	5%	1/16W
R3304	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R3306	1-216-864-11	METAL CHIP	0	5%	1/16W
R3307	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R3308	1-216-817-11	METAL CHIP	470	5%	1/16W
R3309	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R3310	1-216-817-11	METAL CHIP	470	5%	1/16W
R3311	1-216-864-11	METAL CHIP	0	5%	1/16W
R3312	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R3313	1-216-864-11	METAL CHIP	0	5%	1/16W
R3314	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R3315	1-216-817-11	METAL CHIP	470	5%	1/16W
R3316	1-216-864-11	METAL CHIP	0	5%	1/16W
R3317	1-216-857-11	METAL CHIP	1M	5%	1/16W
R3318	1-218-840-11	METAL CHIP	510	0.5%	1/10W
R3319	1-216-815-11	METAL CHIP	330	5%	1/16W
R3320	1-216-864-11	METAL CHIP	0	5%	1/16W
R3321	1-216-864-11	METAL CHIP	0	5%	1/16W
R3322	1-216-864-11	METAL CHIP	0	5%	1/16W
R3323	1-216-864-11	METAL CHIP	0	5%	1/16W
R3324	1-216-864-11	METAL CHIP	0	5%	1/16W
R3325	1-216-864-11	METAL CHIP	0	5%	1/16W
R4400	1-216-805-11	METAL CHIP	47	5%	1/16W
R4401	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R4402	1-216-815-11	METAL CHIP	330	5%	1/16W
R4403	1-216-833-11	METAL CHIP	10K	5%	1/16W
R4404	1-216-833-11	METAL CHIP	10K	5%	1/16W
R4405	1-216-864-11	METAL CHIP	0	5%	1/16W
R4406	1-216-864-11	METAL CHIP	0	5%	1/16W
R4407	1-216-864-11	METAL CHIP	0	5%	1/16W
R4408	1-216-864-11	METAL CHIP	0	5%	1/16W
R4409	1-216-864-11	METAL CHIP	0	5%	1/16W
R4411	1-216-864-11	METAL CHIP	0	5%	1/16W
R4412	1-216-864-11	METAL CHIP	0	5%	1/16W
R4413	1-216-864-11	METAL CHIP	0	5%	1/16W
R4415	1-216-864-11	METAL CHIP	0	5%	1/16W
R4416	1-216-864-11	METAL CHIP	0	5%	1/16W
R4420	1-216-864-11	METAL CHIP	0	5%	1/16W
R4423	1-216-864-11	METAL CHIP	0	5%	1/16W
R4424	1-216-864-11	METAL CHIP	0	5%	1/16W
R4425	1-216-864-11	METAL CHIP	0	5%	1/16W
R4431	1-216-834-11	METAL CHIP	12K	5%	1/16W
R4432	1-216-864-11	METAL CHIP	0	5%	1/16W
R4434	1-216-834-11	METAL CHIP	12K	5%	1/16W
R4435	1-216-864-11	METAL CHIP	0	5%	1/16W

Ref. No.	Part No.	Description			
R4437	1-211-987-11	METAL CHIP	56	0.5%	1/10W
R4438	1-211-987-11	METAL CHIP	56	0.5%	1/10W
R4439	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R4440	1-211-987-11	METAL CHIP	56	0.5%	1/10W
R4441	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R4442	1-211-987-11	METAL CHIP	56	0.5%	1/10W
R4443	1-216-805-11	METAL CHIP	47	5%	1/16W
R4444	1-216-864-11	METAL CHIP	0	5%	1/16W
R4445	1-216-864-11	METAL CHIP	0	5%	1/16W
R4446	1-216-864-11	METAL CHIP	0	5%	1/16W
R4447	1-216-864-11	METAL CHIP	0	5%	1/16W
R5003	1-216-837-11	METAL CHIP	22K	5%	1/16W
R5004	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5005	1-216-809-11	METAL CHIP	100	5%	1/16W
R5008	1-216-809-11	METAL CHIP	100	5%	1/16W
R5009	1-216-833-11	METAL CHIP	10K	5%	1/16W
R5013	1-216-809-11	METAL CHIP	100	5%	1/16W
R5014	1-216-809-11	METAL CHIP	100	5%	1/16W
R5015	1-216-809-11	METAL CHIP	100	5%	1/16W
R5018	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5019	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5020	1-216-853-11	METAL CHIP	470K	5%	1/16W
R5025	1-216-833-11	METAL CHIP	10K	5%	1/16W
R5026	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5028	1-216-841-11	METAL CHIP	47K	5%	1/16W
R5029	1-216-841-11	METAL CHIP	47K	5%	1/16W
R5030	1-216-841-11	METAL CHIP	47K	5%	1/16W
R5031	1-216-841-11	METAL CHIP	47K	5%	1/16W
R5032	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5033	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5034	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5035	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5037	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R5038	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5039	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R5040	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5041	1-218-903-11	METAL CHIP	220K	0.5%	1/10W
R5042	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5043	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5044	1-216-853-11	METAL CHIP	470K	5%	1/16W
R5045	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5046	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5047	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5048	1-216-833-11	METAL CHIP	10K	5%	1/16W
R5049	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5050	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5051	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5052	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5053	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5055	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5057	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5058	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5059	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5060	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5061	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5062	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5063	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5064	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5065	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5066	1-216-845-11	METAL CHIP	100K	5%	1/16W

Ref. No.	Part No.	Description			
R5067	1-216-809-11	METAL CHIP	100	5%	1/16W
R5068	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5069	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5070	1-216-845-11	METAL CHIP	100K	5%	1/16W
R6001	1-216-805-11	METAL CHIP	47	5%	1/16W
R6009	1-216-853-11	METAL CHIP	470K	5%	1/16W
R6013	1-216-853-11	METAL CHIP	470K	5%	1/16W
R6016	1-216-833-11	METAL CHIP	10K	5%	1/16W
R6017	1-216-809-11	METAL CHIP	100	5%	1/16W
R6018	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6019	1-216-809-11	METAL CHIP	100	5%	1/16W
R6020	1-216-809-11	METAL CHIP	100	5%	1/16W
R6022	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6025	1-216-845-11	METAL CHIP	100K	5%	1/16W
R6026	1-216-833-11	METAL CHIP	10K	5%	1/16W
R6027	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6029	1-216-833-11	METAL CHIP	10K	5%	1/16W
R6032	1-216-833-11	METAL CHIP	10K	5%	1/16W
R6033	1-216-845-11	METAL CHIP	100K	5%	1/16W
R6034	1-216-845-11	METAL CHIP	100K	5%	1/16W
R6035	1-216-845-11	METAL CHIP	100K	5%	1/16W
R6036	1-216-845-11	METAL CHIP	100K	5%	1/16W
R6037	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6038	1-216-809-11	METAL CHIP	100	5%	1/16W
R6039	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6040	1-216-841-11	METAL CHIP	47K	5%	1/16W
R6041	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6042	1-216-857-11	METAL CHIP	1M	5%	1/16W
R6043	1-216-845-11	METAL CHIP	100K	5%	1/16W
R6046	1-216-845-11	METAL CHIP	100K	5%	1/16W
R6047	1-216-845-11	METAL CHIP	100K	5%	1/16W
R6048	1-216-853-11	METAL CHIP	470K	5%	1/16W
R6049	1-219-570-11	RES-CHIP	10M	5%	1/10W
R6050	1-216-853-11	METAL CHIP	470K	5%	1/16W
R6052	1-216-853-11	METAL CHIP	470K	5%	1/16W
R6053	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6054	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6055	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6056	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6057	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R6058	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R6059	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R6060	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R6061	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R6062	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R6063	1-216-791-11	METAL CHIP	3.3	5%	1/16W
R6064	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R6072	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6073	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6074	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6075	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6076	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6077	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6078	1-216-853-11	METAL CHIP	470K	5%	1/16W
R6079	1-216-833-11	METAL CHIP	10K	5%	1/16W
R6080	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6081	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6083	1-216-809-11	METAL CHIP	100	5%	1/16W
R6084	1-216-809-11	METAL CHIP	100	5%	1/16W
R6085	1-216-809-11	METAL CHIP	100	5%	1/16W

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Ref. No.	Part No.	Description			
R6086	1-216-864-11	METAL CHIP	0	5%	1/16W
R6087	1-216-864-11	METAL CHIP	0	5%	1/16W
R6089	1-216-864-11	METAL CHIP	0	5%	1/16W
R6090	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6091	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6092	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6093	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6094	1-216-821-11	METAL CHIP	1K	5%	1/16W
R6095	1-216-845-11	METAL CHIP	100K	5%	1/16W
R6096	1-216-845-11	METAL CHIP	100K	5%	1/16W
R6097	1-216-845-11	METAL CHIP	100K	5%	1/16W
R6098	1-216-805-11	METAL CHIP	47	5%	1/16W
R6099	1-216-805-11	METAL CHIP	47	5%	1/16W
R6100	1-216-805-11	METAL CHIP	47	5%	1/16W
R7001	1-216-864-11	METAL CHIP	0	5%	1/16W
R7002	1-216-864-11	METAL CHIP	0	5%	1/16W
R7003	1-216-864-11	METAL CHIP	0	5%	1/16W
R7004	1-216-864-11	METAL CHIP	0	5%	1/16W
R7005	1-216-864-11	METAL CHIP	0	5%	1/16W
R7006	1-216-864-11	METAL CHIP	0	5%	1/16W
R7007	1-216-864-11	METAL CHIP	0	5%	1/16W
R7008	1-216-864-11	METAL CHIP	0	5%	1/16W
		< VARIABLE RESISTOR >			
RV1100	1-238-855-11	RES, ADJ, CERMET 4.7K (A/D CONV. REF. VOLTAGE1)			
RV1101	1-238-855-11	RES, ADJ, CERMET 4.7K (A/D CONV. REF. VOLTAGE2)			
RV1102	1-238-854-11	RES, ADJ, CERMET 2.2K (CR CLAMP REF. VOLTAGE)			
RV1103	1-238-853-11	RES, ADJ, CERMET 1K (Y CLAMP REF. VOLTAGE)			
RV1104	1-238-854-11	RES, ADJ, CERMET 2.2K (CB CLAMP REF. VOLTAGE)			
RV2201	1-238-855-11	RES, ADJ, CERMET 4.7K (AFC PICTURE FRAME)			
		< VIBRATOR >			
X3300	1-760-654-21	VIBRATOR, CRYSTAL (13.5MHz)			
X4400	1-579-922-11	VIBRATOR, CRYSTAL (CHIP TYPE) (24.576MHz)			
X5001	1-760-655-41	VIBRATOR, CRYSTAL (20MHz)			
X6001	1-767-450-11	VIBRATOR, CERAMIC (20MHz)			
X6002	1-760-458-21	VIBRATOR, CRYSTAL (32.768kHz)			

Ref. No.	Part No.	Description			
	A-7078-220-A	JK-216 BOARD, COMPLETE ************************			
		< CAPACITOR >			
C101	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C102	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C103	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C104	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C105	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C106	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C107	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C108	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C109	1-164-346-11	CERAMIC CHIP	1uF		16V
C110	1-164-346-11	CERAMIC CHIP	1uF		16V
C111	1-164-346-11	CERAMIC CHIP	1uF		16V
C112	1-164-346-11	CERAMIC CHIP	1uF		16V
C113	1-164-346-11	CERAMIC CHIP	1uF		16V
C114	1-164-346-11	CERAMIC CHIP	1uF		16V
C115	1-164-346-11	CERAMIC CHIP	1uF		16V
C116	1-164-346-11	CERAMIC CHIP	1uF		16V
		< CONNECTOR >			
CN102	1-764-129-11	CONNECTOR, FPC 15P			
* CN103	1-565-884-11	PIN, CONNECTOR (PC BOARD) 12P			
CN104	1-565-880-11	PIN, CONNECTOR (PC BOARD) 8P			
CN105	1-565-878-11	PIN, CONNECTOR (PC BOARD) 6P			
		< DIODE >			
D101	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D102	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D103	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D108	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D109	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D110	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D111	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D112	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D113	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D114	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D115	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D116	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D117	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D118	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D119	8-719-062-19	DIODE MA3200WA-TX			
D120	8-719-062-19	DIODE MA3200WA-TX			
		< FERRITE BEAD >			
FB101	1-469-130-11	FERRITE	0uH		
FB102	1-469-130-11	FERRITE	0uH		
FB103	1-469-130-11	FERRITE	0uH		
FB104	1-469-130-11	FERRITE	0uH		
FB105	1-469-130-11	FERRITE	0uH		
FB106	1-469-130-11	FERRITE	0uH		
FB107	1-469-130-11	FERRITE	0uH		
FB108	1-469-130-11	FERRITE	0uH		
FB109	1-469-130-11	FERRITE	0uH		
FB110	1-469-130-11	FERRITE	0uH		
FB111	1-469-130-11	FERRITE	0uH		
FB112	1-469-130-11	FERRITE	0uH		
FB113	1-469-130-11	FERRITE	0uH		
FB114	1-469-130-11	FERRITE	0uH		
FB115	1-469-130-11	FERRITE	0uH		
FB116	1-469-130-11	FERRITE	0uH		
FB117	1-469-130-11	FERRITE	0uH		
FB118	1-469-130-11	FERRITE	0uH		
FB119	1-469-130-11	FERRITE	0uH		
FB120	1-469-130-11	FERRITE	0uH		
		< IC >			
IC101	8-759-385-17	IC NJM4580E (TE2)			
IC102	8-759-385-17	IC NJM4580E (TE2)			
		< JACK >			
J101	1-694-727-11	TERMINAL BOARD (S VIDEO/VIDEO/AUDIO IN)			
* J103	1-764-066-11	CONNECTOR, BNC (COMPONENT Y)			
* J104	1-764-066-11	CONNECTOR, BNC (COMPONENT R-Y)			
* J105	1-764-066-11	CONNECTOR, BNC (COMPONENT B-Y)			

Ref. No.	Part No.	Description			
J106	1-770-016-11	JACK BLOCK, PIN 2P (MONITOR)			
* J107	1-764-066-11	CONNECTOR, BNC (TC)			
		< COIL >			
L101	1-410-381-11	INDUCTOR CHIP	10uH		
L102	1-410-381-11	INDUCTOR CHIP	10uH		
		< RESISTOR >			
R101	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R102	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R103	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R104	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R105	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R106	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R107	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R108	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R109	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R110	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R111	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R112	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R113	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R114	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R115	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R116	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R117	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R118	1-216-061-91	RES-CHIP	3.3K	5%	1/10W
R119	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R120	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R121	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R122	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R123	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R124	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R125	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R126	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R127	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R128	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R129	1-216-025-11	RES-CHIP	100	5%	1/10W
R130	1-216-025-11	RES-CHIP	100	5%	1/10W
R131	1-216-025-11	RES-CHIP	100	5%	1/10W
R132	1-216-025-11	RES-CHIP	100	5%	1/10W
R133	1-216-631-11	METAL CHIP	150	0.5%	1/10W
R134	1-216-631-11	METAL CHIP	150	0.5%	1/10W
R135	1-216-631-11	METAL CHIP	150	0.5%	1/10W
R136	1-216-631-11	METAL CHIP	150	0.5%	1/10W
R137	1-216-631-11	METAL CHIP	150	0.5%	1/10W
R138	1-216-631-11	METAL CHIP	150	0.5%	1/10W
R139	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R140	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R141	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R142	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R143	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R144	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R145	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R146	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R147	1-216-631-11	METAL CHIP	150	0.5%	1/10W
R148	1-216-631-11	METAL CHIP	150	0.5%	1/10W
R149	1-216-631-11	METAL CHIP	150	0.5%	1/10W
R150	1-216-631-11	METAL CHIP	150	0.5%	1/10W

Ref. No.	Part No.	Description			
		< SWITCH >			
S101	1-762-825-11	SWITCH, SLIDE (INPUT LEVEL)			

	A-7078-222-A	LS-060 BOARD, COMPLETE ***********************			
*	4-042-408-01	PIN, COATING LEAD			
		< CONNECTOR >			
* CN201	1-770-324-11	CONNECTOR, FPC (DIP TYPE) 8P			
		< DIODE >			
D201	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D202	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D203	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D204	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
		< FERRITE BEAD >			
FB201	1-414-552-11	FERRITE	0uH		
FB202	1-414-552-11	FERRITE	0uH		
FB203	1-414-552-11	FERRITE	0uH		
		< JACK >			
J201	1-565-276-31	JACK, ULTRA SMALL 1P (LANC)			
J202	1-691-737-21	JACK (SMALL TYPE) (CONTROL S IN)			

	A-7067-229-A	MD-76 BOARD, COMPLETE *********************			
*	3-057-555-01	HOLDER, LED			
*	3-066-170-01	HOLDER (A), SENSOR			
	3-973-185-01	ENCODER			
		< CAPACITOR >			
C001	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C002	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
		< CONNECTOR >			
CN001	1-691-359-21	CONNECTOR, FFC/FPC (ZIF) 21P			
CN002	1-691-359-21	CONNECTOR, FFC/FPC (ZIF) 21P			
CN003	1-691-356-21	CONNECTOR, FFC/FPC (ZIF) 18P			
		< DIODE >			
D001	8-719-988-42	DIODE GL453S			
		< IC >			
IC001	8-759-510-71	IC BA10358F-E2			
IC002	8-719-052-03	ELEMENT, HOLE THS124TE85L			
IC003	8-719-052-03	ELEMENT, HOLE THS124TE85L			
IC004	8-719-082-56	PHOTO COUPLER TLP907 (LB, SONY)			
IC005	8-719-082-56	PHOTO COUPLER TLP907 (LB, SONY)			
		< SHORT >			
JR001	1-216-296-11	SHORT	0		
JR003	1-216-296-11	SHORT	0		
JR004	1-216-296-11	SHORT	0		
JR005	1-216-296-11	SHORT	0		
JR006	1-216-864-11	METAL CHIP	0	5%	1/16W

MD-76 PD-170

< TRANSISTOR >

Ref. No.	Part No.	Description			
Q001	8-729-907-25	PHOTO TRANISTOR	PT4850F (TAPE END)		
Q002	8-729-907-25	PHOTO TRANISTOR	PT4850F (TAPE TOP)		

< RESISTOR >

Ref. No.	Part No.	Description			
R001	1-216-816-11	METAL CHIP	390	5%	1/16W
R003	1-216-810-11	METAL CHIP	120	5%	1/16W
R004	1-216-837-11	METAL CHIP	22K	5%	1/16W
R005	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R006	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R007	1-216-809-11	METAL CHIP	100	5%	1/16W
R008	1-216-837-11	METAL CHIP	22K	5%	1/16W
R009	1-216-837-11	METAL CHIP	22K	5%	1/16W
R010	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R011	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R012	1-216-174-00	RES-CHIP	100	5%	1/8W
R013	1-216-837-11	METAL CHIP	22K	5%	1/16W
R014	1-216-180-00	RES-CHIP	180	5%	1/8W
R015	1-216-816-11	METAL CHIP	390	5%	1/16W
R028	1-216-809-11	METAL CHIP	100	5%	1/16W
R029	1-216-809-11	METAL CHIP	100	5%	1/16W
R030	1-216-864-11	METAL CHIP	0	5%	1/16W
R031	1-216-864-11	METAL CHIP	0	5%	1/16W
R032	1-216-864-11	METAL CHIP	0	5%	1/16W
R033	1-216-864-11	METAL CHIP	0	5%	1/16W

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description
RV001	1-241-770-11	RES, ADJ, CARBON 1M (GAIN)
RV002	1-238-019-11	RES, ADJ, CARBON 47K (OFF SET)
RV003	1-241-770-11	RES, ADJ, CARBON 1M (GAIN)
RV004	1-238-019-11	RES, ADJ, CARBON 47K (OFF SET)

< SWITCH >

Ref. No.	Part No.	Description
S001	1-762-551-21	SWITCH, PUSH (L/S CAS)
S002	1-771-604-11	SWITCH, DETECTION (C IN)
S003	1-771-604-11	SWITCH, DETECTION (CC DOWN)

A-7078-205-A PD-170 BOARD, COMPLETE
****

< CAPACITOR >

Ref. No.	Part No.	Description			
C801	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C802	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C803	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C804	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C805	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C806	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C807	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C808	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C810	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C811	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C812	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C813	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C814	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C815	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C816	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C817	1-119-751-11	TANTAL. CHIP	22uF	20%	16V
C818	1-119-751-11	TANTAL. CHIP	22uF	20%	16V
C819	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C902	1-107-687-11	TANTAL. CHIP	3.3uF	20%	20V
C903	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C904	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C905	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C906	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C907	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C908	1-164-872-11	CERAMIC CHIP	82PF	5%	50V
C909	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C911	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C912	1-164-872-11	CERAMIC CHIP	82PF	5%	50V
C913	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C914	1-113-994-11	TANTAL. CHIP	6.8uF	20%	16V
C915	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C916	1-107-689-21	TANTAL. CHIP	1uF	20%	35V
C917	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C918	1-107-682-11	CERAMIC CHIP	1uF	10%	16V

< CONNECTOR >

Ref. No.	Part No.	Description
CN801	1-779-064-11	PIN, CONNECTOR (PC BOARD) 12P
CN802	1-785-283-21	PIN, CONNECTOR (PC BOARD) 14P
* CN901	1-774-261-11	CONNECTOR, FFC (ZIF) 24P

< DIODE >

Ref. No.	Part No.	Description	
D801	8-719-073-01	DIODE	MA111- (K8).S0
D902	8-719-084-46	DIODE	1SV288 (TPH3)
D903	8-719-976-96	DIODE	MA8047-H-TX

< FERRITE BEAD >

Ref. No.	Part No.	Description	
FB801	1-414-234-22	FERRITE	0uH
FB802	1-414-234-22	FERRITE	0uH
FB803	1-414-234-22	FERRITE	0uH

< IC >

Ref. No.	Part No.	Description	
IC801	8-759-364-05	IC	MB40D001PFV-G-BND-ER
IC802	8-759-539-27	IC	IR3Y37A4
IC901	8-759-587-61	IC	LZ9GH234
IC902	8-759-327-01	IC	NJM062V (TE2)

< COIL >

Ref. No.	Part No.	Description	
L801	1-414-757-11	INDUCTOR	100uH
L802	1-414-078-11	INDUCTOR	10uH
L803	1-412-947-11	INDUCTOR	4.7uH
L901	1-414-754-11	INDUCTOR	10uH
L902	1-414-754-11	INDUCTOR	10uH
L903	1-412-951-11	INDUCTOR	10uH
L905	1-412-949-21	INDUCTOR	6.8uH

< TRANSISTOR >

Ref. No.	Part No.	Description	
Q901	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO
Q902	8-729-042-26	TRANSISTOR	2SB1462J-QR (K8).SO
Q903	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO
Q904	8-729-042-26	TRANSISTOR	2SB1462J-QR (K8).SO

< RESISTOR >

Ref. No.	Part No.	Description			
R803	1-218-990-11	SHORT	0		
R805	1-218-990-11	SHORT	0		
R808	1-218-969-11	RES-CHIP	22K	5%	1/16W
R809	1-218-966-11	RES-CHIP	12K	5%	1/16W
R810	1-218-990-11	SHORT	0		
R812	1-218-973-11	RES-CHIP	47K	5%	1/16W
R813	1-218-967-11	RES-CHIP	15K	5%	1/16W

Ref. No.	Part No.	Description			
R814	1-218-971-11	RES-CHIP	33K	5%	1/16W
R817	1-218-966-11	RES-CHIP	12K	5%	1/16W
R818	1-218-972-11	RES-CHIP	39K	5%	1/16W
R820	1-218-977-11	RES-CHIP	100K	5%	1/16W
R821	1-218-965-11	RES-CHIP	10K	5%	1/16W
R904	1-218-973-11	RES-CHIP	47K	5%	1/16W
R905	1-218-973-11	RES-CHIP	47K	5%	1/16W
R908	1-218-987-11	RES-CHIP	680K	5%	1/16W
R909	1-218-978-11	RES-CHIP	120K	5%	1/16W
R910	1-218-977-11	RES-CHIP	100K	5%	1/16W
R911	1-218-965-11	RES-CHIP	10K	5%	1/16W
R912	1-218-989-11	RES-CHIP	1M	5%	1/16W
R913	1-218-990-11	SHORT	0		
R914	1-218-989-11	RES-CHIP	1M	5%	1/16W
R915	1-218-969-11	RES-CHIP	22K	5%	1/16W
R916	1-218-975-11	RES-CHIP	68K	5%	1/16W
R917	1-218-975-11	RES-CHIP	68K	5%	1/16W
R918	1-218-973-11	RES-CHIP	47K	5%	1/16W
R920	1-218-889-11	METAL CHIP	56K	0.5%	1/10W
R921	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R922	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R925	1-218-977-11	RES-CHIP	100K	5%	1/16W
R926	1-218-971-11	RES-CHIP	33K	5%	1/16W
R928	1-218-977-11	RES-CHIP	100K	5%	1/16W
R929	1-218-977-11	RES-CHIP	100K	5%	1/16W
R932	1-218-977-11	RES-CHIP	100K	5%	1/16W
R933	1-218-971-11	RES-CHIP	33K	5%	1/16W
R934	1-218-990-11	SHORT	0		
R935	1-218-883-11	METAL CHIP	33K	0.5%	1/10W
R936	1-218-879-11	METAL CHIP	22K	0.5%	1/10W
R937	1-218-883-11	METAL CHIP	33K	0.5%	1/10W
R938	1-218-879-11	METAL CHIP	22K	0.5%	1/10W
R960	1-218-937-11	RES-CHIP	47	5%	1/16W
R961	1-218-937-11	RES-CHIP	47	5%	1/16W
R962	1-218-937-11	RES-CHIP	47	5%	1/16W

Ref. No.	Part No.	Description
⚠	1-468-666-11	POWER BLOCK (ACS1581-MA) **************************
	7-621-759-45	+PSW 2.6X6
	7-682-947-01	+PSW 3X6
		< FUSE >
⚠F101	9-885-020-11	FUSE (2.5A/250V)

Ref. No.	Part No.	Description			
	A-7067-275-A	RP-234 BOARD, COMPLETE ***********************			
	3-732-817-01	SCREW (2X4.5), TAPPING			
		< CAPACITOR >			
C101	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C102	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C103	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C104	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C105	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C106	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C107	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C108	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C109	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C110	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C111	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C199	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C200	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C201	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C202	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C204	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C205	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C206	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C207	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C208	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C209	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C210	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C211	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C212	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C213	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C214	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C215	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C216	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C217	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C218	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C219	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C220	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C221	1-164-173-11	CERAMIC CHIP	0.0039uF	10%	50V
C222	1-164-173-11	CERAMIC CHIP	0.0039uF	10%	50V
C223	1-164-174-11	CERAMIC CHIP	0.0082uF	10%	25V
C224	1-164-174-11	CERAMIC CHIP	0.0082uF	10%	25V
C301	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C302	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C303	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C304	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C308	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C309	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C310	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C314	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C315	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C333	1-104-912-11	TANTAL. CHIP	3.3uF	20%	4V
C334	1-216-864-11	METAL CHIP	0	5%	1/16W (Note)
		< CONNECTOR >			
CN101	1-691-374-11	CONNECTOR, FFC/FPC 10P			
CN201	1-750-303-41	CONNECTOR, BOARD TO BOARD 20P			
* CN202	1-750-343-11	CONNECTOR, FFC/EPC (ZIF) 22P			
* CN203	1-750-343-11	CONNECTOR, FFC/EPC (ZIF) 22P			
		< IC >			
IC101	8-752-086-53	IC CXA2072R-T4			
IC102	8-759-512-69	IC S-81350HG-KD-T1			
IC201	8-752-086-52	IC CXA2071R-T4			
IC301	8-759-584-35	IC F712504DPM-TEB			
		< COIL >			
L102	1-414-754-11	INDUCTOR	10uH		
L201	1-414-754-11	INDUCTOR	10uH		

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

(Note) Resistor is mounted to the location where C334 is printed

Ref. No.	Part No.	Description			
L202	1-414-754-11	INDUCTOR	10uH		
		< TRANSISTOR >			
Q201	8-729-042-26	TRANSISTOR	2SB1462J-QR (K8).SO		
Q202	8-729-013-04	TRANSISTOR	2SC4851-TL		
Q203	8-729-013-04	TRANSISTOR	2SC4851-TL		
		< RESISTOR >			
R101	1-216-833-11	METAL CHIP	10K	5%	1/16W
R102	1-216-837-11	METAL CHIP	22K	5%	1/16W
R103	1-216-835-11	METAL CHIP	15K	5%	1/16W
R104	1-218-878-11	METAL CHIP	20K	0.5%	1/10W
R105	1-216-837-11	METAL CHIP	22K	5%	1/16W
R106	1-216-837-11	METAL CHIP	22K	5%	1/16W
R107	1-216-837-11	METAL CHIP	22K	5%	1/16W
R108	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R109	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R110	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R111	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R112	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R113	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R115	1-218-863-11	METAL CHIP	4.7K	0.5%	1/10W
R201	1-216-833-11	METAL CHIP	10K	5%	1/16W
R202	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R203	1-216-847-11	METAL CHIP	150K	5%	1/16W
R204	1-216-817-11	METAL CHIP	470	5%	1/16W
R206	1-216-834-11	METAL CHIP	12K	5%	1/16W
R207	1-216-834-11	METAL CHIP	12K	5%	1/16W
R208	1-216-833-11	METAL CHIP	10K	5%	1/16W
R209	1-216-857-11	METAL CHIP	1M	5%	1/16W
R210	1-216-807-11	METAL CHIP	68	5%	1/16W
R211	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R212	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R213	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R214	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R215	1-216-810-11	METAL CHIP	120	5%	1/16W
R216	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R217	1-216-809-11	METAL CHIP	100	5%	1/16W
R218	1-216-809-11	METAL CHIP	100	5%	1/16W
R219	1-216-864-11	METAL CHIP	0	5%	1/16W
R220	1-216-113-00	METAL CHIP	470K	5%	1/10W
R309	1-216-799-11	METAL CHIP	15	5%	1/16W
R338	1-216-845-11	METAL CHIP	100K	5%	1/16W
R339	1-216-864-11	METAL CHIP	0	5%	1/16W
R340	1-216-864-11	METAL CHIP	0	5%	1/16W
R341	1-216-864-11	METAL CHIP	0	5%	1/16W
R347	1-216-864-11	METAL CHIP	0	5%	1/16W
R349	1-216-833-11	METAL CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			
	A-7078-224-A	RS-082 BOARD, COMPLETE ************************			
		< CAPACITOR >			
C301	1-164-346-11	CERAMIC CHIP	1uF		16V
C302	1-163-038-91	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN301	1-573-005-21	CONNECTOR, D-SUB 9P (RS-422)			
CN302	1-691-395-11	CONNECTOR, FPC 6P			
		< DIODE >			
D301	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D302	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D303	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D304	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D305	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
		< FERRITE BEAD >			
FB301	1-414-552-11	FERRITE	0uH		
FB303	1-414-552-11	FERRITE	0uH		
FB304	1-414-552-11	FERRITE	0uH		
FB305	1-414-552-11	FERRITE	0uH		
FB306	1-414-552-11	FERRITE	0uH		
		< IC >			
IC301	8-759-289-43	IC LTC490CS8-E2			
		< COIL >			
L301	1-410-381-11	INDUCTOR CHIP	10uH		
		< RESISTOR >			
R301	1-216-037-00	METAL CHIP	330	5%	1/10W
R302	1-216-037-00	METAL CHIP	330	5%	1/10W
R303	1-216-037-00	METAL CHIP	330	5%	1/10W
R304	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R305	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R306	1-216-049-11	RES-CHIP	1K	5%	1/10W
R307	1-216-009-91	RES-CHIP	22	5%	1/10W

Ref. No.	Part No.	Description			
	A-7078-225-A	RS-083 BOARD, COMPLETE ************************			
		< CAPACITOR >			
C351	1-164-346-11	CERAMIC CHIP	1uF		16V
C352	1-164-346-11	CERAMIC CHIP	1uF		16V
C353	1-164-346-11	CERAMIC CHIP	1uF		16V
C354	1-164-346-11	CERAMIC CHIP	1uF		16V
C355	1-164-346-11	CERAMIC CHIP	1uF		16V
C356	1-163-038-91	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN351	1-565-388-21	CONNECTOR, D-SUB 9P (RS-232C)			
* CN352	1-691-781-11	CONNECTOR, FPC 10P			
		< DIODE >			
D351	8-719-062-19	DIODE MA3200WA-TX			
D352	8-719-062-19	DIODE MA3200WA-TX			
D353	8-719-062-19	DIODE MA3200WA-TX			
D354	8-719-062-19	DIODE MA3200WA-TX			
D355	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
D356	8-719-067-59	DIODE MAZ9120D0LS0-TX/L			
		< FERRITE BEAD >			
FB351	1-414-552-11	FERRITE	0uH		
FB352	1-414-552-11	FERRITE	0uH		
FB353	1-414-552-11	FERRITE	0uH		
FB354	1-414-552-11	FERRITE	0uH		
FB355	1-414-552-11	FERRITE	0uH		

Ref. No.	Part No.	Description			
		< IC >			
IC351	8-759-521-15	IC MAX232CWE-TE-2			
		< COIL >			
L351	1-410-381-11	INDUCTOR CHIP	10uH		
		< RESISTOR >			
R351	1-216-077-91	RES-CHIP	15K	5%	1/10W
		< SWITCH >			
S352	1-692-989-11	SWITCH, SLIDE (RS-422/RS-232C/LANC)			

Ref. No.	Part No.	Description			
	A-7095-082-A	VD-032 BOARD, COMPLETE (DSR-45)			
	A-7095-084-A	VD-032 BOARD, COMPLETE (DSR-45P)			
		***********************			
		< BATTERY >			
BT701	1-528-724-21	BATTERY, V/L RECHARGEABLE			
		< BUZZER >			
BZ701	1-529-104-11	BUZZER, PIEZOELECTRIC			
		< CAPACITOR >			
C001	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C002	1-115-156-11	CERAMIC CHIP	1uF		10V
C003	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C004	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C005	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C006	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C007	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C008	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C009	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C010	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C011	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C012	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C013	1-115-156-11	CERAMIC CHIP	1uF		10V
C014	1-164-156-11	CERAMIC CHIP	0.1uF		25V (DSR-45)
C015	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C016	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C017	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C018	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C019	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C020	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C021	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C022	1-126-396-11	ELECT CHIP	47uF	20%	16V
C023	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C024	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C025	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C026	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C027	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C028	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C029	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C030	1-164-156-11	CERAMIC CHIP	0.1uF		25V

Ref. No.	Part No.	Description			
C031	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C032	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C033	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C034	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C035	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C036	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C037	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C038	1-115-156-11	CERAMIC CHIP	1uF		10V
C039	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C040	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C041	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C042	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C043	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C044	1-127-692-11	CERAMIC CHIP	10uF	10%	6.3V
C045	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C046	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C047	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C048	1-126-396-11	ELECT CHIP	47uF	20%	16V
C049	1-104-850-11	TANTAL. CHIP	6.8uF	20%	10V
C050	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C051	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C052	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C053	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C054	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C055	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C056	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C057	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C058	1-115-156-11	CERAMIC CHIP	1uF		10V
C059	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C060	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C061	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C062	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C063	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C064	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C065	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C066	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C067	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C068	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C069	1-104-850-11	TANTAL. CHIP	6.8uF	20%	10V
C070	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C071	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C072	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C073	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C074	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C075	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C076	1-104-850-11	TANTAL. CHIP	6.8uF	20%	10V
C077	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C078	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C079	1-104-850-11	TANTAL. CHIP	6.8uF	20%	10V
C080	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C081	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C082	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C083	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C084	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C085	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C086	1-104-850-11	TANTAL. CHIP	6.8uF	20%	10V
C087	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C088	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V

CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or eqivalent type.

Ref. No.	Part No.	Description			
C089	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C090	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C091	1-126-396-11	ELECT CHIP	47uF	20%	16V
C092	1-128-405-11	ELECT CHIP	22uF	20%	50V
C093	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C094	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C095	1-115-156-11	CERAMIC CHIP	1uF		10V
C096	1-115-156-11	CERAMIC CHIP	1uF		10V
C097	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C098	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C099	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C201	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C202	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C203	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C204	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C205	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C206	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C207	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C208	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C209	1-128-007-11	ELECT CHIP	2.2uF	20%	35V
C210	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C211	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C212	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C213	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C214	1-162-926-11	CERAMIC CHIP	82PF	5%	50V (DSR-45P)
C214	1-162-927-11	CERAMIC CHIP	100PF	5%	50V (DSR-45)
C215	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C216	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C217	1-162-918-11	CERAMIC CHIP	18PF	5%	50V (DSR-45P)
C217	1-162-919-11	CERAMIC CHIP	22PF	5%	50V (DSR-45)
C218	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C219	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C220	1-162-926-11	CERAMIC CHIP	82PF	5%	50V (DSR-45P)
C220	1-162-927-11	CERAMIC CHIP	100PF	5%	50V (DSR-45)
C221	1-164-218-11	CERAMIC CHIP	180PF	0.25PF	50V (DSR-45P)
C221	1-164-230-11	CERAMIC CHIP	220PF	5%	50V (DSR-45)
C222	1-128-003-11	ELECT CHIP	22uF	20%	4V
C223	1-162-927-11	CERAMIC CHIP	100PF	5%	50V (DSR-45P)
C223	1-162-928-11	CERAMIC CHIP	120PF	5%	50V (DSR-45)
C224	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C225	1-128-003-11	ELECT CHIP	22uF	20%	4V
C226	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C227	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C228	1-128-003-11	ELECT CHIP	22uF	20%	4V
C229	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C230	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C231	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C232	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C233	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C234	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C235	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C236	1-128-003-11	ELECT CHIP	22uF	20%	4V
C237	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C238	1-126-607-11	ELECT CHIP	47uF	20%	4V
C239	1-128-007-11	ELECT CHIP	2.2uF	20%	35V
C240	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C241	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C242	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C243	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C244	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C245	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C246	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C247	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C249	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C250	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C251	1-128-003-11	ELECT CHIP	22uF	20%	4V
C252	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C253	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C254	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C255	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C256	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C257	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C258	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C259	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C260	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C261	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C262	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C264	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C265	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C266	1-126-205-11	ELECT CHIP	47uF	20%	6.3V
C267	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C268	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C269	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C270	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C273	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C274	1-126-607-11	ELECT CHIP	47uF	20%	4V
C275	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C276	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C279	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C280	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C281	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C282	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C283	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C284	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C285	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C286	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C287	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C288	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C289	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C290	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C291	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C292	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C293	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C294	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C295	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C296	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C297	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C298	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C299	1-126-607-11	ELECT CHIP	47uF	20%	4V
C300	1-126-607-11	ELECT CHIP	47uF	20%	4V
C301	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C302	1-128-003-11	ELECT CHIP	22uF	20%	4V

Ref. No.	Part No.	Description			
C303	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C304	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C306	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C307	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C308	1-115-156-11	CERAMIC CHIP	1uF		10V
C310	1-164-156-11	CERAMIC CHIP	0.1uF		25V (DSR-45)
C311	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C312	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C313	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C314	1-128-003-11	ELECT CHIP	22uF	20%	4V
C315	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C316	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C317	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C318	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C319	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C320	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C321	1-128-007-11	ELECT CHIP	2.2uF	20%	35V
C322	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C323	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C324	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C325	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C326	1-162-921-11	CERAMIC CHIP	33PF	5%	50V (DSR-45)
C327	1-162-921-11	CERAMIC CHIP	33PF	5%	50V (DSR-45)
C328	1-128-006-11	ELECT CHIP	4.7uF	20%	25V
C329	1-162-911-11	CERAMIC CHIP	6PF	0.5PF	50V (DSR-45)
C330	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V (DSR-45)
C331	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C332	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V (DSR-45)
C333	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C334	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C335	1-126-607-11	ELECT CHIP	47uF	20%	4V
C336	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C337	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C338	1-126-607-11	ELECT CHIP	47uF	20%	4V
C339	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C340	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C341	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C342	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C343	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C344	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C345	1-162-911-11	CERAMIC CHIP	6PF	0.5PF	50V (DSR-45P)
C346	1-164-739-11	CERAMIC CHIP	560PF	5%	50V (DSR-45P)
C347	1-128-003-11	ELECT CHIP	22uF	20%	4V
C348	1-128-003-11	ELECT CHIP	22uF	20%	4V
C349	1-162-919-11	CERAMIC CHIP	22PF	5%	50V (DSR-45P)
C350	1-162-919-11	CERAMIC CHIP	22PF	5%	50V (DSR-45P)
C351	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V (DSR-45P)
C352	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V (DSR-45P)
C354	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V

Ref. No.	Part No.	Description			
C355	1-164-156-11	CERAMIC CHIP	0.1uF		25V (DSR-45P)
C356	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C357	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C358	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C359	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C360	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C361	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C362	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C363	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C364	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C366	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C367	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C368	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C369	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C370	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C371	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C372	1-162-928-11	CERAMIC CHIP	120PF	5%	50V (DSR-45P)
C373	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C374	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C375	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C376	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C377	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C378	1-128-004-11	ELECT CHIP	10uF	20%	16V
C379	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C501	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C503	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C505	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C506	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C510	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C512	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C513	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C514	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C515	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C516	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C517	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C518	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C519	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C520	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C523	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C601	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C604	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C606	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C617	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C621	1-115-156-11	CERAMIC CHIP	1uF		10V
C622	1-115-156-11	CERAMIC CHIP	1uF		10V
C623	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C624	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C625	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C626	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C627	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C628	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C701	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C702	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C703	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C704	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C705	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C706	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C707	1-162-923-11	CERAMIC CHIP	47PF	5%	50V

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Ref. No.	Part No.	Description			
C708	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C709	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C710	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C711	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C712	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C713	1-128-004-11	ELECT CHIP	10uF	20%	16V
C714	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C715	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C716	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C717	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C720	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C721	1-128-006-11	ELECT CHIP	4.7uF	20%	25V
C723	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C724	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C725	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C726	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C727	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C728	1-126-396-11	ELECT CHIP	47uF	20%	16V
C729	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C730	1-115-156-11	CERAMIC CHIP	1uF		10V
C731	1-115-156-11	CERAMIC CHIP	1uF		10V
C732	1-126-412-11	ELECT CHIP	220uF	20%	4V
C733	1-126-412-11	ELECT CHIP	220uF	20%	4V
C734	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C735	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C736	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C737	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C738	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C739	1-115-156-11	CERAMIC CHIP	1uF		10V
C740	1-115-156-11	CERAMIC CHIP	1uF		10V
C741	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C742	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C743	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C744	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C745	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C746	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C747	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C748	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C749	1-115-156-11	CERAMIC CHIP	1uF		10V
C750	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C751	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C752	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C753	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C754	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C755	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C756	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C757	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C758	1-126-405-11	ELECT CHIP	10uF	20%	50V
C759	1-126-405-11	ELECT CHIP	10uF	20%	50V
C760	1-115-156-11	CERAMIC CHIP	1uF		10V
C761	1-126-396-11	ELECT CHIP	47uF	20%	16V
C762	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C763	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C764	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C766	1-126-412-11	ELECT CHIP	220uF	20%	4V
C901	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C902	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C903	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C904	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C906	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C907	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C908	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C914	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C916	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C918	1-104-915-11	TANTAL. CHIP	2.2uF	20%	20V
C919	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C920	1-107-689-21	TANTAL. CHIP	1uF	20%	35V
C921	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C922	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C923	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C925	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C926	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C927	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C929	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C930	1-135-212-21	TANTAL. CHIP	2.2uF	20%	35V
C931	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C932	1-135-212-21	TANTAL. CHIP	2.2uF	20%	35V
C935	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C936	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C937	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C939	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C941	1-127-530-11	ELECT	22uF	20%	20V
C942	1-127-530-11	ELECT	22uF	20%	20V
C943	1-127-530-11	ELECT	22uF	20%	20V
C945	1-128-405-11	ELECT CHIP	22uF	20%	50V
C946	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C947	1-128-405-11	ELECT CHIP	22uF	20%	50V
C948	1-127-530-11	ELECT	22uF	20%	20V
C949	1-127-530-11	ELECT	22uF	20%	20V
C950	1-127-530-11	ELECT	22uF	20%	20V
C953	1-128-405-11	ELECT CHIP	22uF	20%	50V
C954	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C955	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C956	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C959	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C960	1-128-405-11	ELECT CHIP	22uF	20%	50V
C961	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C962	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C963	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C964	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C965	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C967	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C968	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C969	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C971	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C975	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C976	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C977	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C978	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C980	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C983	1-104-919-11	TANTAL. CHIP	10uF	20%	25V
C986	1-113-992-11	TANTAL. CHIP	3.3uF	20%	35V
C987	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C988	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C989	1-128-400-11	ELECT CHIP	47uF	20%	25V
C990	1-128-400-11	ELECT CHIP	47uF	20%	25V
C991	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C992	1-113-985-11	TANTAL. CHIP	10uF	20%	20V
C993	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C994	1-117-720-11	CERAMIC CHIP	4.7uF		10V

Ref. No.	Part No.	Description			
C999	1-127-562-11	ELECT	47uF	20%	6.3V
C1501	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C1502	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1503	1-128-004-11	ELECT CHIP	10uF	20%	16V
C1504	1-115-156-11	CERAMIC CHIP	1uF		10V
C1505	1-128-004-11	ELECT CHIP	10uF	20%	16V
C1506	1-128-004-11	ELECT CHIP	10uF	20%	16V
C1507	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1508	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1509	1-162-920-11	CERAMIC CHIP	27PF	5%	50V (DSR-45)
C1509	1-162-921-11	CERAMIC CHIP	33PF	5%	50V (DSR-45P)
C1510	1-162-917-11	CERAMIC CHIP	15PF	5%	50V (DSR-45)
C1511	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C1512	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1513	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C1514	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1515	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C1516	1-128-004-11	ELECT CHIP	10uF	20%	16V
C1517	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1518	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1519	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1520	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C1521	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1522	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1523	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1524	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1627	1-126-396-11	ELECT CHIP	47uF	20%	16V
C1628	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C1630	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C1632	1-115-156-11	CERAMIC CHIP	1uF		10V
C1633	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C1634	1-115-156-11	CERAMIC CHIP	1uF		10V
C1635	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C1636	1-115-156-11	CERAMIC CHIP	1uF		10V
C1637	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1638	1-126-396-11	ELECT CHIP	47uF	20%	16V
C1640	1-126-396-11	ELECT CHIP	47uF	20%	16V
C1641	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C1644	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1645	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1646	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1647	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1648	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1649	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1650	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1651	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C1652	1-126-204-11	ELECT CHIP	47uF	20%	16V
C1653	1-126-204-11	ELECT CHIP	47uF	20%	16V
C1654	1-126-204-11	ELECT CHIP	47uF	20%	16V
C1655	1-126-204-11	ELECT CHIP	47uF	20%	16V
C1656	1-126-204-11	ELECT CHIP	47uF	20%	16V
C1657	1-126-204-11	ELECT CHIP	47uF	20%	16V
C1658	1-126-204-11	ELECT CHIP	47uF	20%	16V
C1659	1-126-204-11	ELECT CHIP	47uF	20%	16V
C1660	1-126-204-11	ELECT CHIP	47uF	20%	16V
C1661	1-126-204-11	ELECT CHIP	47uF	20%	16V
C1906	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C1907	1-162-927-11	CERAMIC CHIP	100PF	5%	50V

Ref. No.	Part No.	Description			
C1909	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C1914	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C1916	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C1918	1-104-915-11	TANTAL. CHIP	2.2uF	20%	20V
C1919	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C1920	1-107-689-21	TANTAL. CHIP	1uF	20%	35V
C1921	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C1922	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C1923	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C1925	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C1926	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C1927	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C1929	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C1930	1-135-212-21	TANTAL. CHIP	2.2uF	20%	35V
C1931	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C1932	1-135-212-21	TANTAL. CHIP	2.2uF	20%	35V
C1935	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1936	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C1937	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1939	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1941	1-128-400-11	ELECT CHIP	47uF	20%	25V
C1942	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C1943	1-128-405-11	ELECT CHIP	22uF	20%	50V
C1944	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C1945	1-127-530-11	ELECT	22uF	20%	20V
C1946	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C1947	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C1948	1-128-405-11	ELECT CHIP	22uF	20%	50V
C1949	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C1950	1-128-405-11	ELECT CHIP	22uF	20%	50V
C1951	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C1952	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C1953	1-127-530-11	ELECT	22uF	20%	20V
C1954	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C1955	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C1956	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C1957	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C1959	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C1969	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C1988	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1989	1-128-405-11	ELECT CHIP	22uF	20%	50V
C1990	1-128-400-11	ELECT CHIP	47uF	20%	25V
C1991	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C1998	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C1999	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C2001	1-126-607-11	ELECT CHIP	47uF	20%	4V
C2002	1-126-607-11	ELECT CHIP	47uF	20%	4V
C2003	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C2004	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C2005	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C2006	1-162-922-11	CERAMIC CHIP	39PF	5%	50V
C2007	1-162-921-11	CERAMIC CHIP	33PF	5%	50V
C2008	1-126-607-11	ELECT CHIP	47uF	20%	4V
C2009	1-126-607-11	ELECT CHIP	47uF	20%	4V
C2010	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2011	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2012	1-128-003-11	ELECT CHIP	22uF	20%	4V (DSR-45P)
C2013	1-128-003-11	ELECT CHIP	22uF	20%	4V
C2014	1-164-156-11	CERAMIC CHIP	0.1uF		25V

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Ref. No.	Part No.	Description			
C2015	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2016	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2017	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2018	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2019	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2020	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2021	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2022	1-126-607-11	ELECT CHIP	47uF	20%	4V
C2023	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2024	1-126-607-11	ELECT CHIP	47uF	20%	4V
C2025	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2026	1-164-156-11	CERAMIC CHIP	0.1uF		25V (DSR-45P)
C2027	1-126-607-11	ELECT CHIP	47uF	20%	4V
C2028	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2029	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2030	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2031	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2032	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C2033	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C2034	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2035	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2036	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C2037	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C2038	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C2039	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C2040	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C2041	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2042	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2043	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C2044	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C2045	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2046	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2047	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2048	1-126-607-11	ELECT CHIP	47uF	20%	4V
C2049	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C2050	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C2051	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C2053	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2054	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2055	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2056	1-117-720-11	CERAMIC CHIP	4.7uF		10V (DSR-45P)
C2057	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C2058	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2059	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2060	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2061	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2062	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2063	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2064	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2065	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2066	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2067	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2068	1-128-004-11	ELECT CHIP	10uF	20%	16V
C2069	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2070	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2071	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2072	1-128-004-11	ELECT CHIP	10uF	20%	16V
C2073	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2074	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2075	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2076	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C2077	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C2078	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2079	1-128-004-11	ELECT CHIP	10uF	20%	16V
C2080	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C2081	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2082	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2083	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C2084	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2085	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2087	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2088	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2089	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2090	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2091	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2092	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2093	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C2094	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C2095	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2096	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2097	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2098	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C2099	1-126-392-11	ELECT CHIP	100uF	20%	6.3V
C2100	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2101	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2102	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2103	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2105	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2106	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2107	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C2108	1-126-391-11	ELECT CHIP	47uF	20%	6.3V
C2109	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2110	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C2111	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C2112	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C2113	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C2114	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C2115	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2116	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2117	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2118	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2119	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2120	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2121	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2122	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2123	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2124	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2125	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C2126	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C2127	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C2128	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C2129	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C2130	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C2131	1-164-156-11	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
* CN201	1-764-007-11	PIN, CONNECTOR (SMD) 12P			
* CN202	1-691-551-11	PIN, CONNECTOR (SMD) 8P			

Ref. No.	Part No.	Description
* CN203	1-580-789-21	PIN, CONNECTOR (SMD) 6P
CN501	1-566-522-11	CONNECTOR, FPC (ZIF) 6P
CN502	1-566-526-11	CONNECTOR, FPC (ZIF) 10P
CN701	1-566-524-21	CONNECTOR, FPC (ZIF) 8P
* CN702	1-569-035-11	CONNECTOR, FPC (ZIF) 30P
CN703	1-779-332-11	CONNECTOR, FFC/FPC 16P
* CN704	1-564-013-11	PIN, CONNECTOR 3P
* CN705	1-580-057-11	PIN, CONNECTOR (SMD) 4P
CN707	1-774-770-11	CONNECTOR, FFC/FPC 30P
* CN709	1-580-056-21	PIN, CONNECTOR (SMD) 3P
CN904	1-506-474-11	PIN, CONNECTOR 9P
CN905	1-506-473-11	PIN, CONNECTOR 8P
CN1501	1-774-770-11	CONNECTOR, FFC/FPC 30P
CN1502	1-785-283-21	PIN, CONNECTOR (PC BOARD) 14P
CN1503	1-779-064-11	PIN, CONNECTOR (PC BOARD) 12P
CN1504	1-779-353-21	CONNECTOR, FFC/FPC 5P
* CN1625	1-691-591-11	PIN, CONNECTOR (1.5mm) (SMD) 8P
CN1626	1-774-770-11	CONNECTOR, FFC/FPC 30P
CN1627	1-566-531-11	CONNECTOR, FPC (ZIF) 15P
CN1628	1-566-524-21	CONNECTOR, FPC (ZIF) 8P
CN1629	1-566-528-11	CONNECTOR, FPC (ZIF) 12P
* CN1983	1-564-001-11	PIN, CONNECTOR 2P
* CN1984	1-564-005-11	PIN, CONNECTOR 6P

< DIODE >

Ref. No.	Part No.	Description
D001	8-719-067-56	DIODE MA112-TX
D201	8-719-067-56	DIODE MA112-TX
D202	8-719-055-86	DIODE KV1470TL1-3 (DSR-45)
D203	8-719-067-56	DIODE MA112-TX
D205	8-719-055-86	DIODE KV1470TL1-3 (DSR-45P)
D206	8-719-067-56	DIODE MA112-TX
D501	8-719-067-56	DIODE MA112-TX
D502	8-719-067-56	DIODE MA112-TX
D601	8-719-073-28	DIODE MA729- (K8).S0
D602	8-719-073-28	DIODE MA729- (K8).S0
D701	8-719-073-28	DIODE MA729- (K8).S0
D702	8-719-067-56	DIODE MA112-TX
D703	8-719-067-56	DIODE MA112-TX
D704	8-719-067-56	DIODE MA112-TX
D705	8-719-073-28	DIODE MA729- (K8).S0
D706	8-719-067-56	DIODE MA112-TX
D902	8-719-066-98	DIODE RB051L-40TE25
D903	8-719-066-98	DIODE RB051L-40TE25
D904	8-719-066-98	DIODE RB051L-40TE25
D905	8-719-066-98	DIODE RB051L-40TE25
D906	8-719-073-28	DIODE MA729- (K8).S0
D907	8-719-066-98	DIODE RB051L-40TE25
D909	8-719-067-56	DIODE MA112-TX
D910	8-719-067-56	DIODE MA112-TX
D911	8-719-067-56	DIODE MA112-TX
D912	8-719-067-56	DIODE MA112-TX
D913	8-719-067-56	DIODE MA112-TX
D914	8-719-067-56	DIODE MA112-TX
D916	8-719-066-98	DIODE RB051L-40TE25
D917	8-719-066-98	DIODE RB051L-40TE25
D918	8-719-066-98	DIODE RB051L-40TE25
D919	8-719-067-56	DIODE MA112-TX
D920	8-719-067-56	DIODE MA112-TX
D921	8-719-067-56	DIODE MA112-TX
D922	8-719-067-56	DIODE MA112-TX
D923	8-719-067-56	DIODE MA112-TX
D924	8-719-067-56	DIODE MA112-TX
D925	8-719-067-56	DIODE MA112-TX
D926	8-719-062-16	DIODE 01ZA8.2 (TPL3)
D927	8-719-062-16	DIODE 01ZA8.2 (TPL3)
D928	8-719-062-16	DIODE 01ZA8.2 (TPL3)
D929	8-719-062-16	DIODE 01ZA8.2 (TPL3)
D1625	8-719-067-56	DIODE MA112-TX
D1626	8-719-067-56	DIODE MA112-TX
D1627	8-719-067-56	DIODE MA112-TX
D1628	8-719-067-56	DIODE MA112-TX
D2001	8-719-067-56	DIODE MA112-TX
D2002	8-719-067-56	DIODE MA112-TX
D2003	8-719-067-56	DIODE MA112-TX
D2907	8-719-067-56	DIODE MA112-TX
D2908	8-719-067-56	DIODE MA112-TX

< DELAY LINE >

Ref. No.	Part No.	Description
DL201	1-415-551-11	DELAY LINE 140ns
DL202	1-234-528-21	DELAY LINE
DL2001	1-234-528-21	DELAY LINE
DL2002	1-415-551-11	DELAY LINE 140ns
DL2003	1-415-551-11	DELAY LINE 140ns
DL2004	1-415-551-11	DELAY LINE 140ns

< FUSE >

Ref. No.	Part No.	Description
⚠F901	1-576-318-21	FUSE, CHIP (800mA/63V)
⚠F902	1-576-318-21	FUSE, CHIP (800mA/63V)
⚠F903	1-576-318-21	FUSE, CHIP (800mA/63V)
⚠F904	1-576-318-21	FUSE, CHIP (800mA/63V)
⚠F905	1-576-318-21	FUSE, CHIP (800mA/63V)
⚠F906	1-576-318-21	FUSE, CHIP (800mA/63V)
⚠F910	1-576-447-21	FUSE, MICRO (630mA/24V)
⚠F911	1-533-922-21	FUSE, CHIP (1A/63V)
⚠F912	1-576-318-21	FUSE, CHIP (800mA/63V)
⚠F913	1-576-318-21	FUSE, CHIP (800mA/63V)
⚠F914	1-576-286-21	FUSE, MICRO (1.4A/24V)
⚠F1981	1-576-430-21	FUSE, CHIP (315mA/63V)
⚠F1982	1-576-447-21	FUSE, MICRO (630mA/24V)
⚠F1983	1-576-430-21	FUSE, CHIP (315mA/63V)
⚠F1984	1-576-318-21	FUSE, CHIP (800mA/63V)
⚠F1985	1-576-318-21	FUSE, CHIP (800mA/63V)

< FERRITE BEAD >

Ref. No.	Part No.	Description
FB001	1-500-283-11	FERRITE 0uH
FB002	1-500-283-11	FERRITE 0uH
FB003	1-500-283-11	FERRITE 0uH
FB004	1-500-283-11	FERRITE 0uH
FB005	1-500-283-11	FERRITE 0uH
FB006	1-414-445-11	FERRITE 0uH
FB007	1-414-445-11	FERRITE 0uH
FB008	1-414-445-11	FERRITE 0uH
FB009	1-414-445-11	FERRITE 0uH
FB010	1-414-445-11	FERRITE 0uH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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Ref. No.	Part No.	Description
FB011	1-414-445-11	FERRITE 0uH
FB012	1-414-445-11	FERRITE 0uH
FB013	1-414-445-11	FERRITE 0uH
FB014	1-414-445-11	FERRITE 0uH
FB015	1-414-445-11	FERRITE 0uH
FB016	1-414-228-11	FERRITE 0uH
FB017	1-414-228-11	FERRITE 0uH
FB018	1-414-228-11	FERRITE 0uH
FB501	1-414-445-11	FERRITE 0uH
FB502	1-414-445-11	FERRITE 0uH
FB503	1-414-445-11	FERRITE 0uH
FB504	1-414-445-11	FERRITE 0uH
FB505	1-414-445-11	FERRITE 0uH
FB506	1-414-445-11	FERRITE 0uH
FB507	1-414-445-11	FERRITE 0uH
FB508	1-414-445-11	FERRITE 0uH
FB701	1-414-445-11	FERRITE 0uH
FB702	1-414-445-11	FERRITE 0uH
FB703	1-414-445-11	FERRITE 0uH
FB704	1-414-445-11	FERRITE 0uH
FB705	1-414-445-11	FERRITE 0uH
FB706	1-414-445-11	FERRITE 0uH
FB707	1-414-445-11	FERRITE 0uH
FB708	1-414-445-11	FERRITE 0uH
FB709	1-414-445-11	FERRITE 0uH
FB900	1-414-772-11	FERRITE 0uH
FB904	1-414-772-11	FERRITE 0uH
FB906	1-414-864-11	FERRITE 0uH
FB908	1-414-864-11	FERRITE 0uH
FB910	1-414-772-11	FERRITE 0uH
FB912	1-414-864-11	FERRITE 0uH
FB914	1-414-864-11	FERRITE 0uH
FB916	1-414-864-11	FERRITE 0uH
FB918	1-414-864-11	FERRITE 0uH
FB920	1-414-864-11	FERRITE 0uH
FB2001	1-414-445-11	FERRITE 0uH
FB2002	1-414-445-11	FERRITE 0uH
FB2003	1-414-445-11	FERRITE 0uH
FB2004	1-414-445-11	FERRITE 0uH
FB2005	1-414-445-11	FERRITE 0uH
FB2006	1-414-445-11	FERRITE 0uH
FB2007	1-414-445-11	FERRITE 0uH
FB2008	1-414-445-11	FERRITE 0uH
FB2009	1-414-445-11	FERRITE 0uH
FB2010	1-414-445-11	FERRITE 0uH
FB2011	1-414-445-11	FERRITE 0uH
FB2012	1-414-445-11	FERRITE 0uH
		< FILTER >
FL201	1-233-345-21	FILTER, LOW PASS (5.5MHz)
FL202	1-233-345-21	FILTER, LOW PASS (5.5MHz)
FL203	1-233-345-21	FILTER, LOW PASS (5.5MHz)
FL204	1-233-500-11	FILTER, LOW PASS
FL205	1-233-501-11	FILTER, LOW PASS
FL206	1-233-501-11	FILTER, LOW PASS
FL2001	1-233-501-11	FILTER, LOW PASS
FL2002	1-233-501-11	FILTER, LOW PASS
FL2003	1-235-584-11	FILTER, LOW PASS (DSR-45P)
FL2003	1-235-786-11	FILTER, LOW PASS (3MHz) (DSR-45)
FL2004	1-235-584-11	FILTER, LOW PASS
FL2005	1-233-500-11	FILTER, LOW PASS
FL2006	1-235-161-00	FILTER, BAND PASS (DSR-45)
FL2006	1-235-181-00	FILTER, BAND PASS (DSR-45P)
		< IC >
IC001	8-759-523-78	IC TC74VHC00FT (EL) (DSR-45)
IC002	8-759-523-97	IC TC74VHC123AFT (EL)
IC003	8-759-491-47	IC TC74VHCT08AFT (EL)
IC004	8-759-357-72	IC NJU3712M (TE2)
IC005	8-759-987-27	IC LM1881MX
IC006	8-759-523-78	IC TC74VHC00FT (EL)
IC007	8-759-523-78	IC TC74VHC00FT (EL)
IC008	8-759-357-72	IC NJU3712M (TE2)
IC009	8-759-635-27	IC M62352GP-70ED
IC010	8-759-196-97	IC TC7SH32FU-TE85R
IC011	8-759-058-56	IC TC7S02FU (TE85R)
IC012	8-759-523-78	IC TC74VHC00FT (EL)
IC013	8-752-335-47	IC CXD1216M-T6
IC014	8-759-523-79	IC TC74VHC02FT (EL)
IC015	8-759-635-27	IC M62352GP-70ED
IC016	8-759-388-62	IC NJU7062M (TE2)
IC017	8-759-058-56	IC TC7S02FU (TE85R)
IC018	8-759-524-19	IC TC74VHC164FT (EL)
IC019	8-759-523-97	IC TC74VHC123AFT (EL)
IC020	8-759-523-02	IC TC74HC4053AFT (EL)
IC021	8-759-635-27	IC M62352GP-70ED
IC022	8-759-523-97	IC TC74VHC123AFT (EL)
IC023	8-759-524-48	IC TC74VHC393FT (EL)
IC024	8-759-524-48	IC TC74VHC393FT (EL)
IC025	8-759-491-47	IC TC74VHCT08AFT (EL)
IC026	8-759-144-72	IC uPC358G2-E2
IC027	8-759-524-19	IC TC74VHC164FT (EL)
IC028	8-759-524-19	IC TC74VHC164FT (EL)
IC029	8-759-144-72	IC uPC358G2-E2
IC030	8-759-530-31	IC TC74VHC4040FT (EL)
IC031	8-759-491-50	IC TC74VHCT244AFT (EL)
IC032	8-759-523-78	IC TC74VHC00FT (EL)
IC033	8-759-524-18	IC TC74VHC163FT (EL)
IC034	8-759-524-19	IC TC74VHC164FT (EL)
IC035	8-759-524-19	IC TC74VHC164FT (EL)
IC036	8-752-341-58	IC CXD1217Q-T4
IC037	8-759-523-91	IC TC74VHC20FT (EL)
IC038	8-759-524-18	IC TC74VHC163FT (EL)
IC039	8-759-196-97	IC TC7SH32FU-TE85R
IC040	8-752-341-58	IC CXD1217Q-T4
IC041	8-759-491-46	IC TC74VHC04FT (EL)
IC042	8-759-523-95	IC TC74VHC74FT (EL)
IC043	8-759-523-95	IC TC74VHC74FT (EL)
IC044	8-759-523-97	IC TC74VHC123AFT (EL)
IC045	8-759-524-19	IC TC74VHC164FT (EL)
IC046	8-759-058-56	IC TC7S02FU (TE85R)
IC047	8-759-271-86	IC TC7SH04FU-TE85R
IC048	8-759-524-19	IC TC74VHC164FT (EL)
IC049	8-759-523-97	IC TC74VHC123AFT (EL)
IC050	8-759-144-72	IC uPC358G2-E2
IC051	8-759-195-81	IC TC7S86FU (TE85R)
IC052	8-759-524-19	IC TC74VHC164FT (EL)
IC053	8-759-523-96	IC TC74VHC86FT (EL)
IC054	8-759-144-72	IC uPC358G2-E2
IC055	8-759-058-62	IC TC7S08FU (TE85R)

Ref. No.	Part No.	Description
IC201	8-759-257-87	IC MM1117XFBE
IC202	8-759-433-44	IC MM1031XML
IC203	8-759-337-26	IC MM1115XFBE
IC204	8-759-432-78	IC MM1111XFBE
IC205	8-759-257-87	IC MM1117XFBE
IC206	8-759-433-44	IC MM1031XML
IC207	8-759-257-87	IC MM1117XFBE
IC208	8-759-446-66	IC MM1113XFBE
IC209	8-759-337-26	IC MM1115XFBE
IC210	8-759-449-58	IC LM7131BCM5X
IC211	8-759-446-66	IC MM1113XFBE
IC213	8-759-449-58	IC LM7131BCM5X
IC214	8-752-054-80	IC CXA1521M-T4
IC215	8-752-390-37	IC CXD2064Q-T6
IC216	8-759-432-78	IC MM1111XFBE
IC217	8-759-432-78	IC MM1111XFBE
IC218	8-759-498-27	IC TK16074MTL
IC219	8-759-498-27	IC TK16074MTL
IC220	8-759-603-54	IC M51271FP-70AD
IC221	8-759-449-58	IC LM7131BCM5X
IC222	8-752-053-21	IC CXA1211M-T4
IC223	8-759-337-26	IC MM1115XFBE
IC224	8-759-488-29	IC TC7W66FU (TE12R) (DSR-45P)
IC225	8-759-528-99	IC TC74VHC221AFT (EL) (DSR-45P)
IC226	8-759-449-58	IC LM7131BCM5X
IC227	8-759-449-58	IC LM7131BCM5X
IC228	8-759-432-78	IC MM1111XFBE
IC229	8-759-058-54	IC TC7S00FU (TE85R) (DSR-45P)
IC502	8-759-523-02	IC TC74HC4053AFT (EL)
IC503	1-803-219-11	IC TC3W03FU (TE12R)
IC506	8-759-491-47	IC TC74VHCT08AFT (EL)
IC507	8-759-196-96	IC TC7SH08FU-TE85R
IC508	8-759-491-31	IC TC74VHCT00AF (EL)
IC511	6-801-587-01	IC HD6473837UX-GDX2056
IC621	8-759-196-93	IC TC7SH00FU-TE85R
IC701	8-759-491-50	IC TC74VHCT244AFT (EL)
IC702	8-759-592-49	IC TC7SZ125FU (TE85R)
IC703	8-759-391-99	IC NJU7102AM-TE1
IC704	8-759-443-08	IC TC7W241FU-TE12R
IC705	8-759-580-27	IC S-81236SGUP-DQ7-T1
IC706	8-759-424-79	IC S-8423YFS-T2
IC708	8-759-445-93	IC AK6440AM-E2
IC709	8-759-486-99	IC S-81250SGUP-DQD-T1
IC710	8-759-486-99	IC S-81250SGUP-DQD-T1
IC711	8-759-642-45	IC TL1596CPWR
IC712	8-759-573-16	IC S-81232SG-Q4-T1
IC713	8-752-930-78	IC CXP921064A-063R-T6
IC714	8-759-248-78	IC MB88102PFV-G-BND-ER
IC715	8-759-096-87	IC TC7WU04FU (TE12R)
IC716	8-759-640-84	IC BA6238AN
IC717	8-759-157-17	IC PQ05SZ1U
IC900	8-759-581-08	IC FA3675F
IC902	8-759-581-08	IC FA3675F
IC903	8-759-530-57	IC TLV431ACDBV2
IC1501	8-759-349-01	IC MC68HC68VBIFB
IC1502	8-759-491-47	IC TC74VHCT08AFT (EL)
IC1503	8-759-491-47	IC TC74VHCT08AFT (EL)
IC1504	8-759-523-81	IC TC74VHC08FT (EL)
IC1505	8-759-497-44	IC TC7WH125FU (TE12R)
IC1625	8-759-523-03	IC TC74HC4066AFT (EL)

Ref. No.	Part No.	Description			
IC1626	8-759-523-03	IC TC74HC4066AFT (EL)			
IC1628	8-759-357-68	IC NJM2115M-TE2			
IC1630	8-759-745-64	IC NJM4560M			
IC1633	8-759-700-94	IC NJM5532M (TE2)			
IC1634	8-759-700-94	IC NJM5532M (TE2)			
IC1635	8-759-700-94	IC NJM5532M (TE2)			
IC1636	8-759-700-94	IC NJM5532M (TE2)			
IC2001	8-759-498-27	IC TK16074MTL			
IC2002	8-759-498-27	IC TK16074MTL			
IC2003	8-752-053-21	IC CXA1211M-T4			
IC2004	8-752-054-80	IC CXA1521M-T4			
IC2005	8-752-054-80	IC CXA1521M-T4			
IC2006	8-752-053-21	IC CXA1211M-T4			
IC2007	8-752-053-21	IC CXA1211M-T4			
IC2008	8-752-052-73	IC CXA1451M-T4			
IC2009	8-759-058-56	IC TC7S02FU (TE85R)			
IC2010	8-759-603-56	IC M51272FP-TE2			
IC2011	8-759-449-58	IC LM7131BCM5X			
IC2012	8-759-449-58	IC LM7131BCM5X			
IC2013	8-759-449-58	IC LM7131BCM5X			
IC2014	8-759-449-58	IC LM7131BCM5X			
IC2015	8-752-052-73	IC CXA1451M-T4			
IC2016	8-759-449-58	IC LM7131BCM5X			
IC2017	8-759-449-58	IC LM7131BCM5X			
IC2018	8-759-449-58	IC LM7131BCM5X			
IC2019	8-752-052-73	IC CXA1451M-T4			
IC2020	8-752-052-73	IC CXA1451M-T4			
IC2021	8-752-052-73	IC CXA1451M-T4			
IC2022	8-752-052-73	IC CXA1451M-T4			
IC2023	8-752-052-73	IC CXA1451M-T4			
		< RESISTOR >			
JS1981	1-216-864-11	METAL CHIP	0	5%	1/16W
JS1984	1-216-864-11	METAL CHIP	0	5%	1/16W
JS1985	1-216-864-11	METAL CHIP	0	5%	1/16W
JS1986	1-216-864-11	METAL CHIP	0	5%	1/16W
		< COIL >			
L001	1-412-029-11	INDUCTOR CHIP	10uH		
L002	1-412-029-11	INDUCTOR CHIP	10uH		
L003	1-412-029-11	INDUCTOR CHIP	10uH		
L004	1-412-029-11	INDUCTOR CHIP	10uH		
L005	1-412-029-11	INDUCTOR CHIP	10uH		
L006	1-412-029-11	INDUCTOR CHIP	10uH		
L201	1-410-392-11	INDUCTOR CHIP	82uH (DSR-45P)		
L201	1-410-393-11	INDUCTOR CHIP	100uH (DSR-45)		
L202	1-410-384-31	INDUCTOR CHIP	18uH (DSR-45P)		
L202	1-410-385-11	INDUCTOR CHIP	22uH (DSR-45)		
L203	1-410-380-31	INDUCTOR CHIP	8.2uH (DSR-45P)		
L203	1-410-381-11	INDUCTOR CHIP	10uH (DSR-45)		
L204	1-410-384-31	INDUCTOR CHIP	18uH (DSR-45P)		
L204	1-410-385-11	INDUCTOR CHIP	22uH (DSR-45)		
L205	1-412-029-11	INDUCTOR CHIP	10uH		
L206	1-412-029-11	INDUCTOR CHIP	10uH		
L207	1-412-029-11	INDUCTOR CHIP	10uH		
L208	1-412-029-11	INDUCTOR CHIP	10uH		
L209	1-412-029-11	INDUCTOR CHIP	10uH		
L210	1-412-029-11	INDUCTOR CHIP	10uH		
L215	1-412-808-21	INDUCTOR	470uH		
L217	1-412-029-11	INDUCTOR CHIP	10uH		
L218	1-412-029-11	INDUCTOR CHIP	10uH		

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Ref. No.	Part No.	Description
L219	1-412-029-11	INDUCTOR CHIP 10uH
L220	1-412-029-11	INDUCTOR CHIP 10uH
L221	1-412-029-11	INDUCTOR CHIP 10uH
L222	1-412-029-11	INDUCTOR CHIP 10uH
L501	1-412-029-11	INDUCTOR CHIP 10uH
L502	1-412-029-11	INDUCTOR CHIP 10uH
L503	1-412-029-11	INDUCTOR CHIP 10uH
L504	1-412-029-11	INDUCTOR CHIP 10uH
L621	1-412-029-11	INDUCTOR CHIP 10uH
L622	1-412-029-11	INDUCTOR CHIP 10uH
L701	1-412-029-11	INDUCTOR CHIP 10uH
L702	1-412-029-11	INDUCTOR CHIP 10uH
L705	1-412-029-11	INDUCTOR CHIP 10uH
L706	1-412-029-11	INDUCTOR CHIP 10uH
L708	1-412-029-11	INDUCTOR CHIP 10uH
L709	1-412-029-11	INDUCTOR CHIP 10uH
L710	1-412-029-11	INDUCTOR CHIP 10uH
L711	1-412-029-11	INDUCTOR CHIP 10uH
L712	1-412-032-11	INDUCTOR CHIP 100uH
L713	1-412-029-11	INDUCTOR CHIP 10uH
L714	1-412-029-11	INDUCTOR CHIP 10uH
L715	1-412-029-11	INDUCTOR CHIP 10uH
L901	1-412-960-21	INDUCTOR 56uH
L902	1-412-029-11	INDUCTOR CHIP 10uH
L903	1-412-029-11	INDUCTOR CHIP 10uH
L904	1-416-758-21	INDUCTOR 22uH
L905	1-412-029-11	INDUCTOR CHIP 10uH
L906	1-416-758-21	INDUCTOR 22uH
L907	1-412-029-11	INDUCTOR CHIP 10uH
L908	1-416-606-11	INDUCTOR 47uH
L909	1-412-029-11	INDUCTOR CHIP 10uH
L910	1-409-535-41	INDUCTOR 100uH
L911	1-416-758-21	INDUCTOR 22uH
L912	1-409-535-41	INDUCTOR 100uH
L913	1-409-529-41	INDUCTOR 10uH
L914	1-409-529-41	INDUCTOR 10uH
L915	1-409-529-41	INDUCTOR 10uH
L916	1-409-529-41	INDUCTOR 10uH
L918	1-409-529-41	INDUCTOR 10uH
L919	1-409-529-41	INDUCTOR 10uH
L920	1-409-529-41	INDUCTOR 10uH
L921	1-409-529-41	INDUCTOR 10uH
L922	1-409-529-41	INDUCTOR 10uH
L926	1-409-529-41	INDUCTOR 10uH
L927	1-416-606-11	INDUCTOR 47uH
L928	1-409-529-41	INDUCTOR 10uH
L929	1-409-529-41	INDUCTOR 10uH
L930	1-416-606-11	INDUCTOR 47uH
L931	1-409-556-11	INDUCTOR 47uH
L932	1-409-535-41	INDUCTOR 100uH
L934	1-409-529-41	INDUCTOR 10uH
L935	1-409-529-41	INDUCTOR 10uH
L1501	1-412-029-11	INDUCTOR CHIP 10uH
L1502	1-412-029-11	INDUCTOR CHIP 10uH
L1503	1-410-388-31	INDUCTOR 39uH (DSR-45P)
L1503	1-410-389-31	INDUCTOR CHIP 47uH (DSR-45)
L1504	1-412-029-11	INDUCTOR CHIP 10uH
L1505	1-412-029-11	INDUCTOR CHIP 10uH
L1981	1-409-529-41	INDUCTOR 10uH
L1982	1-409-529-41	INDUCTOR 10uH

Ref. No.	Part No.	Description
L1983	1-412-029-11	INDUCTOR CHIP 10uH
L2001	1-412-029-11	INDUCTOR CHIP 10uH
L2002	1-412-029-11	INDUCTOR CHIP 10uH
L2003	1-412-029-11	INDUCTOR CHIP 10uH
L2004	1-412-029-11	INDUCTOR CHIP 10uH
L2005	1-412-029-11	INDUCTOR CHIP 10uH
L2006	1-412-029-11	INDUCTOR CHIP 10uH
L2007	1-412-029-11	INDUCTOR CHIP 10uH
L2008	1-412-029-11	INDUCTOR CHIP 10uH
L2009	1-412-029-11	INDUCTOR CHIP 10uH
L2010	1-412-029-11	INDUCTOR CHIP 10uH
L2011	1-412-029-11	INDUCTOR CHIP 10uH
		< TRANSISTOR >
Q001	8-729-427-83	TRANSISTOR XP6501- (TX).SO
Q002	8-729-905-35	TRANSISTOR 2SC4081T106R
Q003	8-729-053-44	TRANSISTOR 2SK880GR-TE85L
Q004	8-729-026-52	TRANSISTOR 2SA1576A-T106-R
Q005	8-729-026-52	TRANSISTOR 2SA1576A-T106-R
Q006	8-729-026-52	TRANSISTOR 2SA1576A-T106-R
Q201	8-729-905-35	TRANSISTOR 2SC4081T106R
Q202	8-729-026-52	TRANSISTOR 2SA1576A-T106-R
Q203	8-729-905-35	TRANSISTOR 2SC4081T106R
Q204	8-729-905-35	TRANSISTOR 2SC4081T106R
Q205	8-729-905-35	TRANSISTOR 2SC4081T106R
Q206	8-729-905-35	TRANSISTOR 2SC4081T106R
Q207	8-729-905-35	TRANSISTOR 2SC4081T106R
Q208	8-729-905-35	TRANSISTOR 2SC4081T106R
Q209	8-729-026-52	TRANSISTOR 2SA1576A-T106-R
Q210	8-729-026-52	TRANSISTOR 2SA1576A-T106-R
Q211	8-729-905-35	TRANSISTOR 2SC4081T106R
Q212	8-729-905-35	TRANSISTOR 2SC4081T106R
Q213	8-729-026-52	TRANSISTOR 2SA1576A-T106-R
Q214	8-729-905-35	TRANSISTOR 2SC4081T106R
Q215	8-729-026-52	TRANSISTOR 2SA1576A-T106-R
Q216	8-729-026-52	TRANSISTOR 2SA1576A-T106-R
Q217	8-729-905-35	TRANSISTOR 2SC4081T106R
Q218	8-729-905-35	TRANSISTOR 2SC4081T106R
Q219	8-729-905-35	TRANSISTOR 2SC4081T106R
Q220	8-729-905-35	TRANSISTOR 2SC4081T106R
Q221	8-729-905-35	TRANSISTOR 2SC4081T106R
Q222	8-729-905-35	TRANSISTOR 2SC4081T106R
Q223	8-729-905-35	TRANSISTOR 2SC4081T106R
Q224	8-729-026-52	TRANSISTOR 2SA1576A-T106-R
Q225	8-729-026-52	TRANSISTOR 2SA1576A-T106-R
Q226	8-729-905-35	TRANSISTOR 2SC4081T106R
Q227	8-729-905-35	TRANSISTOR 2SC4081T106R
Q228	8-729-905-35	TRANSISTOR 2SC4081T106R
Q231	8-729-026-52	TRANSISTOR 2SA1576A-T106-R
Q232	8-729-026-52	TRANSISTOR 2SA1576A-T106-R
Q233	8-729-905-35	TRANSISTOR 2SC4081T106R
Q234	8-729-026-52	TRANSISTOR 2SA1576A-T106-R
Q236	8-729-905-35	TRANSISTOR 2SC4081T106R
Q237	8-729-905-35	TRANSISTOR 2SC4081T106R
Q238	8-729-905-35	TRANSISTOR 2SC4081T106R
Q239	8-729-905-35	TRANSISTOR 2SC4081T106R
Q240	8-729-905-35	TRANSISTOR 2SC4081T106R
Q242	8-729-905-35	TRANSISTOR 2SC4081T106R
Q501	8-729-037-72	TRANSISTOR UN9211J- (K8).SO
Q503	8-729-037-72	TRANSISTOR UN9211J- (K8).SO

Ref. No.	Part No.	Description	
Q504	8-729-037-72	TRANSISTOR	UN9211J- (K8).SO
Q505	8-729-037-74	TRANSISTOR	UN9213J- (K8).SO
Q506	8-729-041-23	TRANSISTOR	NDS356AP
Q507	8-729-041-23	TRANSISTOR	NDS356AP
Q508	8-729-037-74	TRANSISTOR	UN9213J- (K8).SO
Q601	8-729-037-72	TRANSISTOR	UN9211J- (K8).SO
Q602	8-729-041-23	TRANSISTOR	NDS356AP
Q603	8-729-037-72	TRANSISTOR	UN9211J- (K8).SO
Q604	8-729-046-75	TRANSISTOR	SI2301DS-T1
Q605	8-729-905-35	TRANSISTOR	2SC4081T106R
Q606	8-729-905-35	TRANSISTOR	2SC4081T106R
Q607	8-729-905-35	TRANSISTOR	2SC4081T106R
Q608	8-729-037-72	TRANSISTOR	UN9211J- (K8).SO
Q609	8-729-041-23	TRANSISTOR	NDS356AP
Q621	8-729-905-35	TRANSISTOR	2SC4081T106R
Q622	8-729-905-35	TRANSISTOR	2SC4081T106R
Q623	8-729-905-35	TRANSISTOR	2SC4081T106R
Q701	8-729-048-50	TRANSISTOR	2SK3018-T106
Q702	8-729-037-74	TRANSISTOR	UN9213J- (K8).SO
Q704	8-729-037-74	TRANSISTOR	UN9213J- (K8).SO
Q705	8-729-037-74	TRANSISTOR	UN9213J- (K8).SO
Q706	8-729-905-35	TRANSISTOR	2SC4081T106R
Q707	8-729-042-58	TRANSISTOR	UN9111J- (K8).SO
Q708	8-729-041-23	TRANSISTOR	NDS356AP
Q709	8-729-421-22	TRANSISTOR	UN2211-TX
Q710	8-729-421-22	TRANSISTOR	UN2211-TX
Q711	8-729-421-22	TRANSISTOR	UN2211-TX
Q712	8-729-421-22	TRANSISTOR	UN2211-TX
Q901	8-729-045-32	TRANSISTOR	HAT1036R-EL
Q902	8-729-905-35	TRANSISTOR	2SC4081T106R
Q903	8-729-905-35	TRANSISTOR	2SC4081T106R
Q904	8-729-046-75	TRANSISTOR	SI2301DS-T1
Q914	8-729-048-12	TRANSISTOR	CPH6302-TL
Q915	8-729-048-12	TRANSISTOR	CPH6302-TL
Q916	8-729-048-12	TRANSISTOR	CPH6302-TL
Q917	8-729-048-11	TRANSISTOR	CPH3304-TL
Q919	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
Q921	8-729-048-11	TRANSISTOR	CPH3304-TL
Q923	8-729-048-50	TRANSISTOR	2SK3018-T106
Q925	8-729-048-50	TRANSISTOR	2SK3018-T106
Q926	8-729-056-72	TRANSISTOR	MCH5805-TL-E
Q927	8-729-048-11	TRANSISTOR	CPH3304-TL
Q928	8-729-048-11	TRANSISTOR	CPH3304-TL
Q929	8-729-048-11	TRANSISTOR	CPH3304-TL
Q930	8-729-048-50	TRANSISTOR	2SK3018-T106
Q933	8-729-048-11	TRANSISTOR	CPH3304-TL
Q934	8-729-048-11	TRANSISTOR	CPH3304-TL
Q937	8-729-048-50	TRANSISTOR	2SK3018-T106
Q938	8-729-048-50	TRANSISTOR	2SK3018-T106
Q939	8-729-048-50	TRANSISTOR	2SK3018-T106
Q940	8-729-048-50	TRANSISTOR	2SK3018-T106
Q941	8-729-048-50	TRANSISTOR	2SK3018-T106
Q1501	8-729-905-35	TRANSISTOR	2SC4081T106R
Q1502	8-729-905-35	TRANSISTOR	2SC4081T106R
Q1503	8-729-905-35	TRANSISTOR	2SC4081T106R
Q1504	8-729-905-35	TRANSISTOR	2SC4081T106R
Q1505	8-729-905-35	TRANSISTOR	2SC4081T106R
Q1506	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
Q1507	8-729-026-52	TRANSISTOR	2SA1576A-T106-R
Q1625	8-729-037-72	TRANSISTOR	UN9211J- (K8).SO

Ref. No.	Part No.	Description			
Q1626	8-729-037-72	TRANSISTOR	UN9211J- (K8).SO		
Q1627	8-729-037-61	TRANSISTOR	UN9113J- (K8).SO		
Q1628	8-729-037-61	TRANSISTOR	UN9113J- (K8).SO		
Q1629	8-729-037-72	TRANSISTOR	UN9211J- (K8).SO		
Q1630	8-729-037-72	TRANSISTOR	UN9211J- (K8).SO		
Q1631	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-AB		
Q1632	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-AB		
Q1633	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-AB		
Q1634	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-AB		
Q1635	8-729-026-52	TRANSISTOR	2SA1576A-T106-R		
Q1636	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-AB		
Q1981	8-729-046-75	TRANSISTOR	SI2301DS-T1		
Q1982	8-729-037-72	TRANSISTOR	UN9211J- (K8).SO		
Q1999	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q2001	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q2002	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q2003	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q2004	8-729-402-84	TRANSISTOR	XN4601-TW		
Q2005	8-729-402-84	TRANSISTOR	XN4601-TW		
Q2006	8-729-026-52	TRANSISTOR	2SA1576A-T106-R		
Q2007	8-729-026-52	TRANSISTOR	2SA1576A-T106-R		
Q2008	8-729-402-84	TRANSISTOR	XN4601-TW		
Q2009	8-729-402-84	TRANSISTOR	XN4601-TW		
Q2010	8-729-026-52	TRANSISTOR	2SA1576A-T106-R		
Q2011	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q2012	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q2013	8-729-402-84	TRANSISTOR	XN4601-TW		
Q2014	8-729-402-84	TRANSISTOR	XN4601-TW		
Q2015	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q2016	8-729-402-84	TRANSISTOR	XN4601-TW (DSR-45P)		
Q2017	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-AB		
Q2018	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q2019	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q2020	8-729-402-84	TRANSISTOR	XN4601-TW		
Q2021	8-729-402-84	TRANSISTOR	XN4601-TW		
Q2022	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q2023	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-AB		
Q2024	8-729-202-38	TRANSISTOR	2SC3326N-TE85L-AB		
Q2025	8-729-026-52	TRANSISTOR	2SA1576A-T106-R		
Q2026	8-729-402-84	TRANSISTOR	XN4601-TW		
Q2027	8-729-402-84	TRANSISTOR	XN4601-TW		
Q2028	8-729-026-52	TRANSISTOR	2SA1576A-T106-R		
Q2029	8-729-026-52	TRANSISTOR	2SA1576A-T106-R		
Q2030	8-729-026-52	TRANSISTOR	2SA1576A-T106-R		
Q2031	8-729-402-84	TRANSISTOR	XN4601-TW		
Q2032	8-729-402-84	TRANSISTOR	XN4601-TW		
Q2033	8-729-402-84	TRANSISTOR	XN4601-TW		
Q2034	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q2035	8-729-026-52	TRANSISTOR	2SA1576A-T106-R		
Q2036	8-729-905-35	TRANSISTOR	2SC4081T106R		
Q2037	8-729-037-72	TRANSISTOR	UN9211J- (K8).SO		
Q2038	8-729-037-72	TRANSISTOR	UN9211J- (K8).SO		
		< RESISTOR >			
R001	1-216-864-11	METAL CHIP	0	5%	1/16W
R002	1-216-864-11	METAL CHIP	0	5%	1/16W
R003	1-216-864-11	METAL CHIP	0	5%	1/16W
R004	1-216-864-11	METAL CHIP	0	5%	1/16W
R005	1-216-821-11	METAL CHIP	1K	5%	1/16W
R006	1-216-827-11	METAL CHIP	3.3K	5%	1/16W

VD-032

Ref. No.	Part No.	Description			
R007	1-216-821-11	METAL CHIP	1K	5%	1/16W
R008	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R009	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R010	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R011	1-216-851-11	METAL CHIP	330K	5%	1/16W
R012	1-216-849-11	METAL CHIP	220K	5%	1/16W
R013	1-216-844-11	METAL CHIP	82K	5%	1/16W
R014	1-216-845-11	METAL CHIP	100K	5%	1/16W
R015	1-216-842-11	METAL CHIP	56K	5%	1/16W
R017	1-216-845-11	METAL CHIP	100K	5%	1/16W
R018	1-216-855-11	METAL CHIP	680K	5%	1/16W
R019	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R021	1-216-833-11	METAL CHIP	10K	5%	1/16W
R022	1-216-839-11	METAL CHIP	33K	5%	1/16W
R023	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R024	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45)
R025	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45)
R026	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45P)
R028	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45)
R029	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45P)
R031	1-216-864-11	METAL CHIP	0	5%	1/16W
R034	1-218-879-11	METAL CHIP	22K	0.5%	1/10W
R035	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45)
R036	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45P)
R037	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45P)
R038	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45)
R039	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45P)
R040	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R041	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R042	1-216-797-11	METAL CHIP	10	5%	1/16W
R043	1-216-845-11	METAL CHIP	100K	5%	1/16W
R044	1-216-833-11	METAL CHIP	10K	5%	1/16W
R045	1-216-833-11	METAL CHIP	10K	5%	1/16W
R046	1-216-821-11	METAL CHIP	1K	5%	1/16W
R047	1-216-821-11	METAL CHIP	1K	5%	1/16W
R048	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R049	1-216-833-11	METAL CHIP	10K	5%	1/16W
R050	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R051	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R052	1-216-833-11	METAL CHIP	10K	5%	1/16W
R053	1-216-839-11	METAL CHIP	33K	5%	1/16W
R054	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R055	1-218-854-11	METAL CHIP	2K	0.5%	1/10W
R056	1-216-833-11	METAL CHIP	10K	5%	1/16W
R057	1-216-843-11	METAL CHIP	68K	5%	1/16W
R058	1-216-821-11	METAL CHIP	1K	5%	1/16W
R059	1-216-844-11	METAL CHIP	82K	5%	1/16W
R060	1-216-809-11	METAL CHIP	100	5%	1/16W
R062	1-216-864-11	METAL CHIP	0	5%	1/16W
R066	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45P)
R067	1-216-864-11	METAL CHIP	0	5%	1/16W
R069	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45)
R070	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45P)
R071	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45P)
R072	1-216-864-11	METAL CHIP	0	5%	1/16W
R073	1-216-809-11	METAL CHIP	100	5%	1/16W
R074	1-216-809-11	METAL CHIP	100	5%	1/16W
R075	1-216-809-11	METAL CHIP	100	5%	1/16W
R076	1-216-809-11	METAL CHIP	100	5%	1/16W
R079	1-216-864-11	METAL CHIP	0	5%	1/16W
R081	1-216-809-11	METAL CHIP	100	5%	1/16W
R083	1-216-809-11	METAL CHIP	100	5%	1/16W
R084	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45)
R085	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45P)
R086	1-216-809-11	METAL CHIP	100	5%	1/16W
R087	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45)
R088	1-216-809-11	METAL CHIP	100	5%	1/16W (DSR-45)
R089	1-216-809-11	METAL CHIP	100	5%	1/16W
R090	1-216-809-11	METAL CHIP	100	5%	1/16W
R091	1-216-809-11	METAL CHIP	100	5%	1/16W
R092	1-216-809-11	METAL CHIP	100	5%	1/16W
R093	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45P)
R094	1-216-809-11	METAL CHIP	100	5%	1/16W
R095	1-216-864-11	METAL CHIP	0	5%	1/16W
R096	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45P)
R097	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45)
R098	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45)
R099	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45P)
R100	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45P)
R101	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45)
R102	1-218-854-11	METAL CHIP	2K	0.5%	1/10W
R103	1-216-833-11	METAL CHIP	10K	5%	1/16W
R104	1-216-839-11	METAL CHIP	33K	5%	1/16W
R105	1-216-837-11	METAL CHIP	22K	5%	1/16W
R106	1-216-809-11	METAL CHIP	100	5%	1/16W
R107	1-216-833-11	METAL CHIP	10K	5%	1/16W
R108	1-216-809-11	METAL CHIP	100	5%	1/16W
R109	1-216-833-11	METAL CHIP	10K	5%	1/16W
R110	1-218-881-11	METAL CHIP	27K	0.5%	1/10W
R111	1-218-881-11	METAL CHIP	27K	0.5%	1/10W
R112	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R113	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45P)
R114	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45)
R115	1-218-854-11	METAL CHIP	2K	0.5%	1/10W
R116	1-216-833-11	METAL CHIP	10K	5%	1/16W
R117	1-216-839-11	METAL CHIP	33K	5%	1/16W
R118	1-216-809-11	METAL CHIP	100	5%	1/16W
R119	1-216-833-11	METAL CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			
R120	1-216-837-11	METAL CHIP	22K	5%	1/16W
R127	1-216-809-11	METAL CHIP	100	5%	1/16W
R128	1-216-833-11	METAL CHIP	10K	5%	1/16W
R129	1-216-864-11	METAL CHIP	0	5%	1/16W
R131	1-218-881-11	METAL CHIP	27K	0.5%	1/10W
R132	1-218-881-11	METAL CHIP	27K	0.5%	1/10W
R133	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R134	1-218-854-11	METAL CHIP	2K	0.5%	1/10W
R135	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R136	1-218-823-11	METAL CHIP	100	0.5%	1/10W
R137	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R138	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R140	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R141	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R142	1-218-823-11	METAL CHIP	100	0.5%	1/10W
R143	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R144	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R204	1-218-827-11	METAL CHIP	150	0.5%	1/10W
R205	1-218-827-11	METAL CHIP	150	0.5%	1/10W
R206	1-216-809-11	METAL CHIP	100	5%	1/16W
R207	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R208	1-216-864-11	METAL CHIP	0	5%	1/16W
R209	1-216-809-11	METAL CHIP	100	5%	1/16W
R210	1-216-864-11	METAL CHIP	0	5%	1/16W
R211	1-216-821-11	METAL CHIP	1K	5%	1/16W
R212	1-216-864-11	METAL CHIP	0	5%	1/16W
R213	1-216-845-11	METAL CHIP	100K	5%	1/16W
R214	1-216-864-11	METAL CHIP	0	5%	1/16W
R215	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R216	1-216-821-11	METAL CHIP	1K	5%	1/16W
R217	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R218	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R219	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R220	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R221	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R222	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R223	1-216-837-11	METAL CHIP	22K	5%	1/16W
R224	1-216-837-11	METAL CHIP	22K	5%	1/16W
R225	1-211-985-11	METAL CHIP	47	0.5%	1/10W
R226	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R227	1-216-821-11	METAL CHIP	1K	5%	1/16W
R228	1-216-821-11	METAL CHIP	1K	5%	1/16W
R229	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R230	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R231	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R232	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R233	1-216-813-11	METAL CHIP	220	5%	1/16W
R234	1-216-837-11	METAL CHIP	22K	5%	1/16W
R235	1-216-833-11	METAL CHIP	10K	5%	1/16W
R236	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R237	1-216-821-11	METAL CHIP	1K	5%	1/16W
R238	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R239	1-216-819-11	METAL CHIP	680	5%	1/16W
R240	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R241	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R242	1-216-821-11	METAL CHIP	1K	5%	1/16W
R243	1-218-863-11	METAL CHIP	4.7K	0.5%	1/10W
R244	1-216-821-11	METAL CHIP	1K	5%	1/16W
R245	1-218-869-11	METAL CHIP	8.2K	0.5%	1/10W
R246	1-216-837-11	METAL CHIP	22K	5%	1/16W

Ref. No.	Part No.	Description			
R247	1-216-833-11	METAL CHIP	10K	5%	1/16W
R248	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R249	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R250	1-216-809-11	METAL CHIP	100	5%	1/16W
R251	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R252	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R253	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R254	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R255	1-216-864-11	METAL CHIP	0	5%	1/16W
R256	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R257	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R258	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R259	1-216-837-11	METAL CHIP	22K	5%	1/16W
R260	1-218-843-11	METAL CHIP	680	0.5%	1/10W
R262	1-218-843-11	METAL CHIP	680	0.5%	1/10W
R263	1-216-809-11	METAL CHIP	100	5%	1/16W
R264	1-216-809-11	METAL CHIP	100	5%	1/16W
R265	1-216-818-11	METAL CHIP	560	5%	1/16W
R266	1-216-809-11	METAL CHIP	100	5%	1/16W
R267	1-216-809-11	METAL CHIP	100	5%	1/16W
R268	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R269	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R270	1-216-842-11	METAL CHIP	56K	5%	1/16W
R271	1-216-817-11	METAL CHIP	470	5%	1/16W
R272	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R273	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R274	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R275	1-216-821-11	METAL CHIP	1K	5%	1/16W
R276	1-216-821-11	METAL CHIP	1K	5%	1/16W
R277	1-216-833-11	METAL CHIP	10K	5%	1/16W
R278	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R279	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R280	1-216-817-11	METAL CHIP	470	5%	1/16W
R281	1-216-817-11	METAL CHIP	470	5%	1/16W
R282	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R283	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R284	1-216-835-11	METAL CHIP	15K	5%	1/16W
R285	1-216-834-11	METAL CHIP	12K	5%	1/16W
R286	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R287	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R288	1-216-821-11	METAL CHIP	1K	5%	1/16W
R289	1-218-843-11	METAL CHIP	680	0.5%	1/10W
R290	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45)
R291	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R292	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R293	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45P)
R294	1-216-833-11	METAL CHIP	10K	5%	1/16W
R295	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R296	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R297	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R298	1-218-841-11	METAL CHIP	560	0.5%	1/10W
R299	1-218-841-11	METAL CHIP	560	0.5%	1/10W
R301	1-218-841-11	METAL CHIP	560	0.5%	1/10W
R302	1-218-841-11	METAL CHIP	560	0.5%	1/10W
R303	1-216-821-11	METAL CHIP	1K	5%	1/16W
R304	1-218-823-11	METAL CHIP	100	0.5%	1/10W
R305	1-216-840-11	METAL CHIP	39K	5%	1/16W
R306	1-216-825-11	METAL CHIP	2.2K	5%	1/16W

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Ref. No.	Part No.	Description			
R307	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R308	1-218-843-11	METAL CHIP	680	0.5%	1/10W
R309	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R310	1-218-867-11	METAL CHIP	6.8K	0.5%	1/10W
R311	1-216-836-11	METAL CHIP	18K	5%	1/16W
R312	1-216-838-11	METAL CHIP	27K	5%	1/16W
R313	1-216-836-11	METAL CHIP	18K	5%	1/16W
R314	1-216-838-11	METAL CHIP	27K	5%	1/16W
R315	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R316	1-216-839-11	METAL CHIP	33K	5%	1/16W
R317	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R318	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R320	1-216-845-11	METAL CHIP	100K	5%	1/16W (DSR-45)
R322	1-216-837-11	METAL CHIP	22K	5%	1/16W
R323	1-218-878-11	METAL CHIP	20K	0.5%	1/10W (DSR-45)
R323	1-218-879-11	METAL CHIP	22K	0.5%	1/10W (DSR-45P)
R324	1-216-844-11	METAL CHIP	82K	5%	1/16W
R325	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R326	1-218-869-11	METAL CHIP	8.2K	0.5%	1/10W
R327	1-216-845-11	METAL CHIP	100K	5%	1/16W (DSR-45)
R329	1-218-869-11	METAL CHIP	8.2K	0.5%	1/10W
R330	1-216-833-11	METAL CHIP	10K	5%	1/16W (DSR-45)
R331	1-216-821-11	METAL CHIP	1K	5%	1/16W
R332	1-216-845-11	METAL CHIP	100K	5%	1/16W (DSR-45)
R333	1-216-845-11	METAL CHIP	100K	5%	1/16W (DSR-45)
R335	1-216-864-11	METAL CHIP	0	5%	1/16W
R336	1-216-853-11	METAL CHIP	470K	5%	1/16W
R337	1-216-836-11	METAL CHIP	18K	5%	1/16W
R338	1-216-839-11	METAL CHIP	33K	5%	1/16W
R339	1-216-836-11	METAL CHIP	18K	5%	1/16W
R340	1-216-839-11	METAL CHIP	33K	5%	1/16W
R341	1-216-833-11	METAL CHIP	10K	5%	1/16W
R342	1-216-833-11	METAL CHIP	10K	5%	1/16W
R343	1-218-843-11	METAL CHIP	680	0.5%	1/10W
R344	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R345	1-216-805-11	METAL CHIP	47	5%	1/16W (DSR-45)
R346	1-216-815-11	METAL CHIP	330	5%	1/16W (DSR-45)
R347	1-218-845-11	METAL CHIP	820	0.5%	1/10W
R348	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R349	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R350	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45P)
R351	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45)
R352	1-218-833-11	METAL CHIP	270	0.5%	1/10W (DSR-45P)
R352	1-218-835-11	METAL CHIP	330	0.5%	1/10W (DSR-45)
R353	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45)
R354	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45P)
R355	1-218-839-11	METAL CHIP	470	0.5%	1/10W (DSR-45)
R355	1-218-841-11	METAL CHIP	560	0.5%	1/10W (DSR-45P)
R356	1-218-867-11	METAL CHIP	6.8K	0.5%	1/10W
R357	1-218-867-11	METAL CHIP	6.8K	0.5%	1/10W
R358	1-218-883-11	METAL CHIP	33K	0.5%	1/10W
R359	1-216-833-11	METAL CHIP	10K	5%	1/16W
R360	1-216-837-11	METAL CHIP	22K	5%	1/16W
R362	1-216-839-11	METAL CHIP	33K	5%	1/16W
R364	1-216-833-11	METAL CHIP	10K	5%	1/16W
R365	1-216-833-11	METAL CHIP	10K	5%	1/16W
R366	1-216-837-11	METAL CHIP	22K	5%	1/16W
R367	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45)
R368	1-216-864-11	METAL CHIP	0	5%	1/16W (DSR-45P)
R369	1-216-821-11	METAL CHIP	1K	5%	1/16W
R370	1-216-833-11	METAL CHIP	10K	5%	1/16W
R371	1-216-806-11	RES-CHIP	56	5%	1/10W (DSR-45P)
R372	1-216-809-11	METAL CHIP	100	5%	1/16W (DSR-45P)
R373	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R374	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R375	1-218-887-11	METAL CHIP	47K	0.5%	1/10W (DSR-45P)
R376	1-216-845-11	METAL CHIP	100K	5%	1/16W (DSR-45P)
R377	1-216-845-11	METAL CHIP	100K	5%	1/16W (DSR-45P)
R378	1-216-837-11	METAL CHIP	22K	5%	1/16W
R379	1-216-837-11	METAL CHIP	22K	5%	1/16W
R380	1-216-845-11	METAL CHIP	100K	5%	1/16W (DSR-45P)
R381	1-216-864-11	METAL CHIP	0	5%	1/16W
R384	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R385	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R386	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R387	1-218-823-11	METAL CHIP	100	0.5%	1/10W
R388	1-218-843-11	METAL CHIP	680	0.5%	1/10W
R389	1-216-845-11	METAL CHIP	100K	5%	1/16W (DSR-45P)
R390	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R391	1-218-823-11	METAL CHIP	100	0.5%	1/10W
R392	1-218-843-11	METAL CHIP	680	0.5%	1/10W
R394	1-216-864-11	METAL CHIP	0	5%	1/16W
R396	1-216-842-11	METAL CHIP	56K	5%	1/16W (DSR-45P)
R397	1-216-813-11	METAL CHIP	220	5%	1/16W
R398	1-216-813-11	METAL CHIP	220	5%	1/16W
R502	1-216-845-11	METAL CHIP	100K	5%	1/16W
R503	1-216-857-11	METAL CHIP	1M	5%	1/16W
R505	1-216-857-11	METAL CHIP	1M	5%	1/16W
R506	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R508	1-216-805-11	METAL CHIP	47	5%	1/16W
R509	1-216-864-11	METAL CHIP	0	5%	1/16W
R511	1-216-864-11	METAL CHIP	0	5%	1/16W
R518	1-216-864-11	METAL CHIP	0	5%	1/16W
R523	1-216-864-11	METAL CHIP	0	5%	1/16W
R524	1-216-864-11	METAL CHIP	0	5%	1/16W
R528	1-216-296-11	SHORT	0		
R529	1-216-857-11	METAL CHIP	1M	5%	1/16W
R530	1-216-857-11	METAL CHIP	1M	5%	1/16W

Ref. No.	Part No.	Description			
R531	1-216-833-11	METAL CHIP	10K	5%	1/16W
R532	1-216-845-11	METAL CHIP	100K	5%	1/16W
R533	1-216-845-11	METAL CHIP	100K	5%	1/16W
R534	1-216-833-11	METAL CHIP	10K	5%	1/16W
R535	1-216-845-11	METAL CHIP	100K	5%	1/16W
R536	1-216-845-11	METAL CHIP	100K	5%	1/16W
R537	1-216-845-11	METAL CHIP	100K	5%	1/16W
R538	1-216-845-11	METAL CHIP	100K	5%	1/16W
R539	1-216-805-11	METAL CHIP	47	5%	1/16W
R540	1-216-857-11	METAL CHIP	1M	5%	1/16W
R541	1-216-805-11	METAL CHIP	47	5%	1/16W
R543	1-216-805-11	METAL CHIP	47	5%	1/16W
R544	1-216-805-11	METAL CHIP	47	5%	1/16W
R545	1-216-805-11	METAL CHIP	47	5%	1/16W
R546	1-216-805-11	METAL CHIP	47	5%	1/16W
R547	1-216-845-11	METAL CHIP	100K	5%	1/16W
R548	1-216-845-11	METAL CHIP	100K	5%	1/16W
R549	1-216-230-00	RES-CHIP	22K	5%	1/8W
R601	1-216-857-11	METAL CHIP	1M	5%	1/16W
R602	1-216-845-11	METAL CHIP	100K	5%	1/16W
R603	1-216-841-11	METAL CHIP	47K	5%	1/16W
R604	1-216-845-11	METAL CHIP	100K	5%	1/16W
R605	1-216-833-11	METAL CHIP	10K	5%	1/16W
R606	1-218-893-11	METAL CHIP	82K	0.5%	1/10W
R607	1-218-895-11	METAL CHIP	100K	0.5%	1/10W
R608	1-216-833-11	METAL CHIP	10K	5%	1/16W
R609	1-216-833-11	METAL CHIP	10K	5%	1/16W
R613	1-216-845-11	METAL CHIP	100K	5%	1/16W
R614	1-216-857-11	METAL CHIP	1M	5%	1/16W
R615	1-216-025-11	RES-CHIP	100	5%	1/10W
R621	1-216-821-11	METAL CHIP	1K	5%	1/16W
R622	1-216-833-11	METAL CHIP	10K	5%	1/16W
R623	1-216-833-11	METAL CHIP	10K	5%	1/16W
R624	1-216-821-11	METAL CHIP	1K	5%	1/16W
R625	1-218-886-11	METAL CHIP	43K	0.5%	1/10W
R626	1-218-881-11	METAL CHIP	27K	0.5%	1/10W
R701	1-216-805-11	METAL CHIP	47	5%	1/16W
R702	1-216-857-11	METAL CHIP	1M	5%	1/16W
R703	1-218-903-11	METAL CHIP	220K	0.5%	1/10W
R704	1-218-863-11	METAL CHIP	4.7K	0.5%	1/10W
R705	1-216-864-11	METAL CHIP	0	5%	1/16W
R708	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R709	1-216-805-11	METAL CHIP	47	5%	1/16W
R710	1-216-805-11	METAL CHIP	47	5%	1/16W
R711	1-216-805-11	METAL CHIP	47	5%	1/16W
R712	1-216-833-11	METAL CHIP	10K	5%	1/16W
R713	1-218-905-11	METAL CHIP	270K	0.5%	1/10W
R714	1-216-182-00	RES-CHIP	220	5%	1/8W
R715	1-216-182-00	RES-CHIP	220	5%	1/8W
R716	1-216-182-00	RES-CHIP	220	5%	1/8W
R717	1-216-182-00	RES-CHIP	220	5%	1/8W
R718	1-216-864-11	METAL CHIP	0	5%	1/16W
R720	1-211-969-11	METAL CHIP	10	0.5%	1/10W
R721	1-218-904-11	METAL CHIP	240K	0.5%	1/10W
R722	1-218-907-11	METAL CHIP	330K	0.5%	1/10W
R723	1-216-833-11	METAL CHIP	10K	5%	1/16W
R724	1-216-853-11	METAL CHIP	470K	5%	1/16W
R725	1-218-911-11	METAL CHIP	470K	0.5%	1/10W
R726	1-216-864-11	METAL CHIP	0	5%	1/16W
R727	1-216-829-11	METAL CHIP	4.7K	5%	1/16W

Ref. No.	Part No.	Description			
R728	1-216-833-11	METAL CHIP	10K	5%	1/16W
R729	1-216-821-11	METAL CHIP	1K	5%	1/16W
R730	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R731	1-216-802-11	RES-CHIP	27	5%	1/10W
R732	1-216-821-11	METAL CHIP	1K	5%	1/16W
R733	1-216-802-11	RES-CHIP	27	5%	1/10W
R734	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R735	1-216-864-11	METAL CHIP	0	5%	1/16W
R738	1-216-845-11	METAL CHIP	100K	5%	1/16W
R739	1-216-833-11	METAL CHIP	10K	5%	1/16W
R740	1-216-805-11	METAL CHIP	47	5%	1/16W
R741	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R742	1-216-845-11	METAL CHIP	100K	5%	1/16W
R743	1-216-845-11	METAL CHIP	100K	5%	1/16W
R744	1-216-805-11	METAL CHIP	47	5%	1/16W
R745	1-216-805-11	METAL CHIP	47	5%	1/16W
R746	1-216-805-11	METAL CHIP	47	5%	1/16W
R747	1-216-805-11	METAL CHIP	47	5%	1/16W
R748	1-216-805-11	METAL CHIP	47	5%	1/16W
R749	1-216-805-11	METAL CHIP	47	5%	1/16W
R750	1-216-805-11	METAL CHIP	47	5%	1/16W
R751	1-216-805-11	METAL CHIP	47	5%	1/16W
R752	1-216-805-11	METAL CHIP	47	5%	1/16W
R753	1-216-805-11	METAL CHIP	47	5%	1/16W
R754	1-216-805-11	METAL CHIP	47	5%	1/16W
R755	1-216-864-11	METAL CHIP	0	5%	1/16W
R756	1-216-845-11	METAL CHIP	100K	5%	1/16W
R757	1-216-841-11	METAL CHIP	47K	5%	1/16W
R758	1-216-845-11	METAL CHIP	100K	5%	1/16W
R759	1-216-845-11	METAL CHIP	100K	5%	1/16W
R760	1-216-845-11	METAL CHIP	100K	5%	1/16W
R761	1-216-845-11	METAL CHIP	100K	5%	1/16W
R762	1-216-845-11	METAL CHIP	100K	5%	1/16W
R763	1-216-845-11	METAL CHIP	100K	5%	1/16W
R764	1-216-805-11	METAL CHIP	47	5%	1/16W
R765	1-216-805-11	METAL CHIP	47	5%	1/16W
R766	1-216-805-11	METAL CHIP	47	5%	1/16W
R767	1-216-805-11	METAL CHIP	47	5%	1/16W
R768	1-216-805-11	METAL CHIP	47	5%	1/16W
R769	1-216-805-11	METAL CHIP	47	5%	1/16W
R771	1-216-805-11	METAL CHIP	47	5%	1/16W
R774	1-216-864-11	METAL CHIP	0	5%	1/16W
R775	1-216-805-11	METAL CHIP	47	5%	1/16W
R776	1-216-805-11	METAL CHIP	47	5%	1/16W
R777	1-216-805-11	METAL CHIP	47	5%	1/16W
R778	1-216-805-11	METAL CHIP	47	5%	1/16W
R779	1-216-805-11	METAL CHIP	47	5%	1/16W
R780	1-216-805-11	METAL CHIP	47	5%	1/16W
R781	1-216-805-11	METAL CHIP	47	5%	1/16W
R782	1-216-805-11	METAL CHIP	47	5%	1/16W
R783	1-216-841-11	METAL CHIP	47K	5%	1/16W
R784	1-216-845-11	METAL CHIP	100K	5%	1/16W
R785	1-216-857-11	METAL CHIP	1M	5%	1/16W
R786	1-216-805-11	METAL CHIP	47	5%	1/16W
R787	1-216-805-11	METAL CHIP	47	5%	1/16W
R788	1-216-845-11	METAL CHIP	100K	5%	1/16W
R789	1-216-845-11	METAL CHIP	100K	5%	1/16W
R790	1-216-805-11	METAL CHIP	47	5%	1/16W
R791	1-216-805-11	METAL CHIP	47	5%	1/16W
R792	1-216-845-11	METAL CHIP	100K	5%	1/16W

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Ref. No.	Part No.	Description			
R793	1-216-845-11	METAL CHIP	100K	5%	1/16W
R794	1-216-805-11	METAL CHIP	47	5%	1/16W
R795	1-216-864-11	METAL CHIP	0	5%	1/16W
R796	1-216-845-11	METAL CHIP	100K	5%	1/16W
R797	1-216-845-11	METAL CHIP	100K	5%	1/16W
R798	1-216-805-11	METAL CHIP	47	5%	1/16W
R799	1-216-864-11	METAL CHIP	0	5%	1/16W
R800	1-216-857-11	METAL CHIP	1M	5%	1/16W
R801	1-216-805-11	METAL CHIP	47	5%	1/16W
R802	1-218-903-11	METAL CHIP	220K	0.5%	1/10W
R803	1-216-805-11	METAL CHIP	47	5%	1/16W
R804	1-216-805-11	METAL CHIP	47	5%	1/16W
R805	1-216-841-11	METAL CHIP	47K	5%	1/16W
R806	1-216-857-11	METAL CHIP	1M	5%	1/16W
R807	1-216-805-11	METAL CHIP	47	5%	1/16W
R808	1-216-805-11	METAL CHIP	47	5%	1/16W
R809	1-216-805-11	METAL CHIP	47	5%	1/16W
R810	1-216-864-11	METAL CHIP	0	5%	1/16W
R811	1-216-845-11	METAL CHIP	100K	5%	1/16W
R812	1-216-805-11	METAL CHIP	47	5%	1/16W
R813	1-216-805-11	METAL CHIP	47	5%	1/16W
R814	1-216-845-11	METAL CHIP	100K	5%	1/16W
R815	1-216-813-11	METAL CHIP	220	5%	1/16W
R816	1-216-841-11	METAL CHIP	47K	5%	1/16W
R817	1-216-864-11	METAL CHIP	0	5%	1/16W
R818	1-216-845-11	METAL CHIP	100K	5%	1/16W
R819	1-216-805-11	METAL CHIP	47	5%	1/16W
R820	1-216-864-11	METAL CHIP	0	5%	1/16W
R821	1-216-805-11	METAL CHIP	47	5%	1/16W
R822	1-216-845-11	METAL CHIP	100K	5%	1/16W
R823	1-216-805-11	METAL CHIP	47	5%	1/16W
R824	1-216-805-11	METAL CHIP	47	5%	1/16W
R825	1-216-845-11	METAL CHIP	100K	5%	1/16W
R826	1-216-864-11	METAL CHIP	0	5%	1/16W
R827	1-216-845-11	METAL CHIP	100K	5%	1/16W
R828	1-216-864-11	METAL CHIP	0	5%	1/16W
R829	1-216-857-11	METAL CHIP	1M	5%	1/16W
R830	1-216-045-00	METAL CHIP	680	5%	1/10W
R831	1-216-039-00	METAL CHIP	390	5%	1/10W
R832	1-216-805-11	METAL CHIP	47	5%	1/16W
R833	1-216-162-00	RES-CHIP	33	5%	1/8W
R834	1-216-845-11	METAL CHIP	100K	5%	1/16W
R835	1-216-845-11	METAL CHIP	100K	5%	1/16W
R836	1-216-162-00	RES-CHIP	33	5%	1/8W
R837	1-216-845-11	METAL CHIP	100K	5%	1/16W
R838	1-216-845-11	METAL CHIP	100K	5%	1/16W
R839	1-216-845-11	METAL CHIP	100K	5%	1/16W
R840	1-216-845-11	METAL CHIP	100K	5%	1/16W
R841	1-216-845-11	METAL CHIP	100K	5%	1/16W
R842	1-216-162-00	RES-CHIP	33	5%	1/8W
R843	1-216-035-00	METAL CHIP	270	5%	1/10W
R844	1-216-162-00	RES-CHIP	33	5%	1/8W
R845	1-216-805-11	METAL CHIP	47	5%	1/16W
R846	1-216-805-11	METAL CHIP	47	5%	1/16W
R847	1-216-805-11	METAL CHIP	47	5%	1/16W
R848	1-216-805-11	METAL CHIP	47	5%	1/16W
R849	1-216-864-11	METAL CHIP	0	5%	1/16W
R850	1-216-805-11	METAL CHIP	47	5%	1/16W
R851	1-216-805-11	METAL CHIP	47	5%	1/16W
R852	1-219-570-11	RES-CHIP	10M	5%	1/10W
R853	1-216-841-11	METAL CHIP	47K	5%	1/16W
R854	1-216-841-11	METAL CHIP	47K	5%	1/16W
R855	1-216-805-11	METAL CHIP	47	5%	1/16W
R856	1-216-805-11	METAL CHIP	47	5%	1/16W
R857	1-216-805-11	METAL CHIP	47	5%	1/16W
R858	1-216-805-11	METAL CHIP	47	5%	1/16W
R859	1-216-805-11	METAL CHIP	47	5%	1/16W
R860	1-216-035-00	METAL CHIP	270	5%	1/10W
R861	1-216-833-11	METAL CHIP	10K	5%	1/16W
R862	1-216-805-11	METAL CHIP	47	5%	1/16W
R863	1-216-805-11	METAL CHIP	47	5%	1/16W
R864	1-216-864-11	METAL CHIP	0	5%	1/16W
R865	1-216-864-11	METAL CHIP	0	5%	1/16W
R866	1-216-864-11	METAL CHIP	0	5%	1/16W
R869	1-216-864-11	METAL CHIP	0	5%	1/16W
R870	1-216-296-11	SHORT	0		
R877	1-216-813-11	METAL CHIP	220	5%	1/16W
R878	1-216-178-00	RES-CHIP	150	5%	1/8W
R879	1-216-805-11	METAL CHIP	47	5%	1/16W
R880	1-216-805-11	METAL CHIP	47	5%	1/16W
R881	1-216-805-11	METAL CHIP	47	5%	1/16W
R882	1-216-837-11	METAL CHIP	22K	5%	1/16W
R901	1-216-833-11	METAL CHIP	10K	5%	1/16W
R902	1-216-833-11	METAL CHIP	10K	5%	1/16W
R903	1-216-857-11	METAL CHIP	1M	5%	1/16W
R904	1-216-295-91	SHORT	0		
R905	1-218-885-11	METAL CHIP	39K	0.5%	1/10W
R906	1-218-854-11	METAL CHIP	2K	0.5%	1/10W
R907	1-218-873-11	METAL CHIP	12K	0.5%	1/10W
R908	1-218-868-11	METAL CHIP	7.5K	0.5%	1/10W
R909	1-218-911-11	METAL CHIP	470K	0.5%	1/10W
R910	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R911	1-218-895-11	METAL CHIP	100K	0.5%	1/10W
R912	1-218-895-11	METAL CHIP	100K	0.5%	1/10W
R913	1-216-845-11	METAL CHIP	100K	5%	1/16W
R914	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R915	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R916	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R917	1-216-845-11	METAL CHIP	100K	5%	1/16W
R918	1-216-295-91	SHORT	0		
R919	1-218-894-11	METAL CHIP	91K	0.5%	1/10W
R920	1-218-903-11	METAL CHIP	220K	0.5%	1/10W
R921	1-218-911-11	METAL CHIP	470K	0.5%	1/10W
R922	1-218-883-11	METAL CHIP	33K	0.5%	1/10W
R923	1-218-883-11	METAL CHIP	33K	0.5%	1/10W
R924	1-218-883-11	METAL CHIP	33K	0.5%	1/10W
R925	1-218-909-11	METAL CHIP	390K	0.5%	1/10W
R926	1-218-883-11	METAL CHIP	33K	0.5%	1/10W
R927	1-218-909-11	METAL CHIP	390K	0.5%	1/10W
R928	1-218-907-11	METAL CHIP	330K	0.5%	1/10W
R929	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R930	1-216-857-11	METAL CHIP	1M	5%	1/16W
R931	1-218-907-11	METAL CHIP	330K	0.5%	1/10W
R932	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R933	1-218-908-91	METAL CHIP	360K	0.5%	1/10W
R934	1-218-895-11	METAL CHIP	100K	0.5%	1/10W
R935	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R936	1-218-885-11	METAL CHIP	39K	0.5%	1/10W
R938	1-218-883-11	METAL CHIP	33K	0.5%	1/10W
R939	1-216-857-11	METAL CHIP	1M	5%	1/16W

Ref. No.	Part No.	Description			
R940	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R941	1-218-895-11	METAL CHIP	100K	0.5%	1/10W
R942	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R943	1-218-903-11	METAL CHIP	220K	0.5%	1/10W
R944	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R945	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R946	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R948	1-218-885-11	METAL CHIP	39K	0.5%	1/10W
R949	1-218-873-11	METAL CHIP	12K	0.5%	1/10W
R950	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R951	1-216-857-11	METAL CHIP	1M	5%	1/16W
R952	1-218-911-11	METAL CHIP	470K	0.5%	1/10W
R953	1-218-903-11	METAL CHIP	220K	0.5%	1/10W
R954	1-216-834-11	METAL CHIP	12K	5%	1/16W
R955	1-216-821-11	METAL CHIP	1K	5%	1/16W
R958	1-216-863-11	RES-CHIP	3.3M	5%	1/10W
R959	1-216-863-11	RES-CHIP	3.3M	5%	1/10W
R960	1-216-863-11	RES-CHIP	3.3M	5%	1/10W
R961	1-216-857-11	METAL CHIP	1M	5%	1/16W
R962	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R963	1-216-857-11	METAL CHIP	1M	5%	1/16W
R964	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R967	1-218-823-11	METAL CHIP	100	0.5%	1/10W
R973	1-216-295-91	SHORT	0		
R980	1-216-833-11	METAL CHIP	10K	5%	1/16W
R983	1-218-903-11	METAL CHIP	220K	0.5%	1/10W
R984	1-218-629-91	METAL CHIP	180	5%	1W
R985	1-218-629-91	METAL CHIP	180	5%	1W
R986	1-218-629-91	METAL CHIP	180	5%	1W
R987	1-218-629-91	METAL CHIP	180	5%	1W
R988	1-218-629-91	METAL CHIP	180	5%	1W
R989	1-218-629-91	METAL CHIP	180	5%	1W
R990	1-218-629-91	METAL CHIP	180	5%	1W
R991	1-218-629-91	METAL CHIP	180	5%	1W
R992	1-218-629-91	METAL CHIP	180	5%	1W
R1501	1-216-864-11	METAL CHIP	0	5%	1/16W
R1502	1-216-864-11	METAL CHIP	0	5%	1/16W
R1503	1-216-864-11	METAL CHIP	0	5%	1/16W
R1504	1-216-864-11	METAL CHIP	0	5%	1/16W
R1505	1-216-864-11	METAL CHIP	0	5%	1/16W
R1506	1-216-864-11	METAL CHIP	0	5%	1/16W
R1507	1-216-864-11	METAL CHIP	0	5%	1/16W
R1508	1-216-864-11	METAL CHIP	0	5%	1/16W
R1509	1-216-864-11	METAL CHIP	0	5%	1/16W
R1510	1-216-864-11	METAL CHIP	0	5%	1/16W
R1511	1-216-864-11	METAL CHIP	0	5%	1/16W
R1512	1-216-864-11	METAL CHIP	0	5%	1/16W
R1513	1-216-809-11	METAL CHIP	100	5%	1/16W
R1514	1-216-809-11	METAL CHIP	100	5%	1/16W
R1515	1-216-809-11	METAL CHIP	100	5%	1/16W
R1516	1-216-809-11	METAL CHIP	100	5%	1/16W
R1517	1-216-809-11	METAL CHIP	100	5%	1/16W
R1518	1-216-809-11	METAL CHIP	100	5%	1/16W
R1519	1-216-809-11	METAL CHIP	100	5%	1/16W
R1520	1-216-809-11	METAL CHIP	100	5%	1/16W
R1522	1-216-809-11	METAL CHIP	100	5%	1/16W
R1523	1-216-841-11	METAL CHIP	47K	5%	1/16W
R1524	1-216-841-11	METAL CHIP	47K	5%	1/16W
R1525	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1526	1-216-849-11	METAL CHIP	220K	5%	1/16W

Ref. No.	Part No.	Description			
R1527	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1528	1-216-839-11	METAL CHIP	33K	5%	1/16W
R1529	1-216-819-11	METAL CHIP	680	5%	1/16W
R1530	1-216-816-11	METAL CHIP	390	5%	1/16W
R1531	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1532	1-216-817-11	METAL CHIP	470	5%	1/16W
R1533	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1534	1-216-836-11	METAL CHIP	18K	5%	1/16W
R1535	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1536	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1537	1-216-815-11	METAL CHIP	330	5%	1/16W
R1539	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1540	1-216-853-11	METAL CHIP	470K	5%	1/16W
R1541	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1542	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1543	1-216-841-11	METAL CHIP	47K	5%	1/16W
R1544	1-216-841-11	METAL CHIP	47K	5%	1/16W
R1545	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1546	1-216-845-11	METAL CHIP	100K	5%	1/16W
R1547	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1548	1-216-797-11	METAL CHIP	10	5%	1/16W
R1549	1-216-797-11	METAL CHIP	10	5%	1/16W
R1550	1-216-797-11	METAL CHIP	10	5%	1/16W
R1551	1-216-797-11	METAL CHIP	10	5%	1/16W
R1553	1-216-809-11	METAL CHIP	100	5%	1/16W
R1554	1-216-797-11	METAL CHIP	10	5%	1/16W
R1556	1-216-809-11	METAL CHIP	100	5%	1/16W
R1557	1-216-797-11	METAL CHIP	10	5%	1/16W
R1558	1-216-797-11	METAL CHIP	10	5%	1/16W
R1559	1-216-797-11	METAL CHIP	10	5%	1/16W
R1625	1-216-845-11	METAL CHIP	100K	5%	1/16W
R1626	1-216-841-11	METAL CHIP	47K	5%	1/16W
R1627	1-216-845-11	METAL CHIP	100K	5%	1/16W
R1628	1-216-845-11	METAL CHIP	100K	5%	1/16W
R1633	1-216-864-11	METAL CHIP	0	5%	1/16W
R1634	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1635	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1636	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1637	1-216-837-11	METAL CHIP	22K	5%	1/16W
R1638	1-216-864-11	METAL CHIP	0	5%	1/16W
R1639	1-216-182-00	RES-CHIP	220	5%	1/8W
R1640	1-216-182-00	RES-CHIP	220	5%	1/8W
R1641	1-216-864-11	METAL CHIP	0	5%	1/16W
R1642	1-216-864-11	METAL CHIP	0	5%	1/16W
R1643	1-216-182-00	RES-CHIP	220	5%	1/8W
R1644	1-216-182-00	RES-CHIP	220	5%	1/8W
R1645	1-216-864-11	METAL CHIP	0	5%	1/16W
R1646	1-216-864-11	METAL CHIP	0	5%	1/16W
R1647	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R1648	1-216-864-11	METAL CHIP	0	5%	1/16W
R1649	1-216-864-11	METAL CHIP	0	5%	1/16W
R1650	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R1652	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R1655	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R1657	1-216-841-11	METAL CHIP	47K	5%	1/16W
R1661	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1662	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1663	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1664	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R1665	1-216-832-11	METAL CHIP	8.2K	5%	1/16W

Ref. No.	Part No.	Description			
R1668	1-216-864-11	METAL CHIP	0	5%	1/16W
R1669	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1670	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1671	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1672	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R1673	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1674	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1675	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1676	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1677	1-216-833-11	METAL CHIP	10K	5%	1/16W
R1678	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R1679	1-216-809-11	METAL CHIP	100	5%	1/16W
R1681	1-216-809-11	METAL CHIP	100	5%	1/16W
R1687	1-216-797-11	METAL CHIP	10	5%	1/16W
R1688	1-216-797-11	METAL CHIP	10	5%	1/16W
R1697	1-216-864-11	METAL CHIP	0	5%	1/16W
R1698	1-216-864-11	METAL CHIP	0	5%	1/16W
R1699	1-216-864-11	METAL CHIP	0	5%	1/16W
R1700	1-216-864-11	METAL CHIP	0	5%	1/16W
R1701	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1702	1-218-873-11	METAL CHIP	12K	0.5%	1/10W
R1703	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1704	1-218-873-11	METAL CHIP	12K	0.5%	1/10W
R1705	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1706	1-218-873-11	METAL CHIP	12K	0.5%	1/10W
R1707	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1708	1-218-873-11	METAL CHIP	12K	0.5%	1/10W
R1709	1-218-868-11	METAL CHIP	7.5K	0.5%	1/10W
R1710	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1711	1-218-868-11	METAL CHIP	7.5K	0.5%	1/10W
R1712	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1713	1-218-868-11	METAL CHIP	7.5K	0.5%	1/10W
R1714	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1715	1-218-868-11	METAL CHIP	7.5K	0.5%	1/10W
R1716	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R1718	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1720	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1722	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1724	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1725	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1727	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1729	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1731	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1734	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1736	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1738	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1740	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1741	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1742	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1743	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1744	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1745	1-216-801-11	METAL CHIP	22	5%	1/16W
R1746	1-216-801-11	METAL CHIP	22	5%	1/16W
R1747	1-216-801-11	METAL CHIP	22	5%	1/16W
R1748	1-216-801-11	METAL CHIP	22	5%	1/16W
R1749	1-216-801-11	METAL CHIP	22	5%	1/16W
R1750	1-216-801-11	METAL CHIP	22	5%	1/16W
R1751	1-216-801-11	METAL CHIP	22	5%	1/16W
R1752	1-216-801-11	METAL CHIP	22	5%	1/16W
R1773	1-216-162-00	RES-CHIP	33	5%	1/8W

Ref. No.	Part No.	Description			
R1774	1-216-162-00	RES-CHIP	33	5%	1/8W
R1775	1-216-162-00	RES-CHIP	33	5%	1/8W
R1776	1-216-809-11	METAL CHIP	100	5%	1/16W
R1777	1-216-809-11	METAL CHIP	100	5%	1/16W
R1778	1-216-809-11	METAL CHIP	100	5%	1/16W
R1779	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1907	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R1908	1-218-882-11	METAL CHIP	30K	0.5%	1/10W
R1909	1-218-900-11	METAL CHIP	160K	0.5%	1/10W
R1910	1-218-899-11	METAL CHIP	150K	0.5%	1/16W
R1911	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R1912	1-218-909-11	METAL CHIP	390K	0.5%	1/10W
R1915	1-218-875-11	METAL CHIP	15K	0.5%	1/10W
R1916	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1917	1-218-887-11	METAL CHIP	47K	0.5%	1/10W
R1918	1-216-295-91	SHORT	0		
R1922	1-218-883-11	METAL CHIP	33K	0.5%	1/10W
R1923	1-218-883-11	METAL CHIP	33K	0.5%	1/10W
R1925	1-218-883-11	METAL CHIP	33K	0.5%	1/10W
R1926	1-218-883-11	METAL CHIP	33K	0.5%	1/10W
R1927	1-218-909-11	METAL CHIP	390K	0.5%	1/10W
R1928	1-218-907-11	METAL CHIP	330K	0.5%	1/10W
R1929	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1931	1-218-907-11	METAL CHIP	330K	0.5%	1/10W
R1933	1-218-909-11	METAL CHIP	390K	0.5%	1/10W
R1934	1-218-895-11	METAL CHIP	100K	0.5%	1/10W
R1935	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R1936	1-218-885-11	METAL CHIP	39K	0.5%	1/10W
R1938	1-218-883-11	METAL CHIP	33K	0.5%	1/10W
R1940	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R1941	1-218-895-11	METAL CHIP	100K	0.5%	1/10W
R1942	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R1944	1-216-845-11	METAL CHIP	100K	5%	1/16W
R1945	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R1946	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R1948	1-218-885-11	METAL CHIP	39K	0.5%	1/10W
R1949	1-218-873-11	METAL CHIP	12K	0.5%	1/10W
R1950	1-218-866-11	METAL CHIP	6.2K	0.5%	1/10W
R1958	1-216-863-11	RES-CHIP	3.3M	5%	1/10W
R1959	1-216-863-11	RES-CHIP	3.3M	5%	1/10W
R1960	1-216-863-11	RES-CHIP	3.3M	5%	1/10W
R1967	1-218-823-11	METAL CHIP	100	0.5%	1/10W
R1983	1-218-903-11	METAL CHIP	220K	0.5%	1/10W
R1984	1-216-845-11	METAL CHIP	100K	5%	1/16W
R1985	1-216-845-11	METAL CHIP	100K	5%	1/16W
R1987	1-216-845-11	METAL CHIP	100K	5%	1/16W
R1988	1-216-841-11	METAL CHIP	47K	5%	1/16W
R1994	1-216-813-11	METAL CHIP	220	5%	1/16W
R1995	1-216-821-11	METAL CHIP	1K	5%	1/16W
R1996	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R1997	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R1998	1-216-162-00	RES-CHIP	33	5%	1/8W
R1999	1-216-162-00	RES-CHIP	33	5%	1/8W
R2001	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2002	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2003	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R2004	1-216-821-11	METAL CHIP	1K	5%	1/16W
R2005	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R2006	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R2007	1-216-827-11	METAL CHIP	3.3K	5%	1/16W

Ref. No.	Part No.	Description			
R2008	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R2009	1-218-841-11	METAL CHIP	560	0.5%	1/10W
R2010	1-218-841-11	METAL CHIP	560	0.5%	1/10W
R2011	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2012	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2013	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2014	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R2015	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R2016	1-216-821-11	METAL CHIP	1K	5%	1/16W
R2017	1-218-859-11	METAL CHIP	3.3K	0.5%	1/10W
R2018	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R2019	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R2020	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R2021	1-218-877-11	METAL CHIP	18K	0.5%	1/10W
R2022	1-218-843-11	METAL CHIP	680	0.5%	1/10W
R2023	1-218-841-11	METAL CHIP	560	0.5%	1/10W
R2024	1-218-841-11	METAL CHIP	560	0.5%	1/10W
R2025	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R2026	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R2027	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R2028	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R2029	1-216-836-11	METAL CHIP	18K	5%	1/16W
R2030	1-216-838-11	METAL CHIP	27K	5%	1/16W
R2031	1-216-836-11	METAL CHIP	18K	5%	1/16W
R2032	1-216-838-11	METAL CHIP	27K	5%	1/16W
R2033	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2034	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2035	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2036	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2038	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2039	1-216-839-11	METAL CHIP	33K	5%	1/16W
R2040	1-216-835-11	METAL CHIP	15K	5%	1/16W
R2041	1-216-834-11	METAL CHIP	12K	5%	1/16W
R2042	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2043	1-216-837-11	METAL CHIP	22K	5%	1/16W
R2044	1-218-843-11	METAL CHIP	680	0.5%	1/10W
R2045	1-216-836-11	METAL CHIP	18K	5%	1/16W
R2046	1-216-839-11	METAL CHIP	33K	5%	1/16W
R2047	1-216-836-11	METAL CHIP	18K	5%	1/16W
R2048	1-216-839-11	METAL CHIP	33K	5%	1/16W
R2049	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2050	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2051	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R2053	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2054	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2055	1-218-871-11	METAL CHIP	10K	0.5%	1/10W (DSR-45P)
R2056	1-218-871-11	METAL CHIP	10K	0.5%	1/10W (DSR-45P)
R2057	1-216-837-11	METAL CHIP	22K	5%	1/16W
R2059	1-216-837-11	METAL CHIP	22K	5%	1/16W
R2060	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2061	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2062	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R2063	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R2065	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2066	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R2067	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R2068	1-216-835-11	METAL CHIP	15K	5%	1/16W
R2069	1-216-834-11	METAL CHIP	12K	5%	1/16W
R2070	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R2071	1-218-867-11	RES-CHIP	6.8K	5%	1/10W
R2073	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R2074	1-216-829-11	METAL CHIP	4.7K	5%	1/16W (DSR-45P)
R2075	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2076	1-216-825-11	METAL CHIP	2.2K	5%	1/16W (DSR-45P)
R2077	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2078	1-216-837-11	METAL CHIP	22K	5%	1/16W
R2079	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2080	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2081	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2082	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2083	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2084	1-216-837-11	METAL CHIP	22K	5%	1/16W
R2085	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2086	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2087	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2088	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2089	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2090	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2091	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2092	1-218-885-11	METAL CHIP	39K	0.5%	1/10W
R2093	1-216-809-11	METAL CHIP	100	5%	1/16W
R2094	1-218-869-11	METAL CHIP	8.2K	0.5%	1/10W
R2095	1-218-868-11	METAL CHIP	7.5K	0.5%	1/10W
R2096	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2097	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2098	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2099	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2100	1-216-841-11	METAL CHIP	47K	5%	1/16W
R2101	1-216-864-11	METAL CHIP	0	5%	1/16W
R2102	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2103	1-216-821-11	METAL CHIP	1K	5%	1/16W
R2104	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R2105	1-216-809-11	METAL CHIP	100	5%	1/16W
R2106	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2107	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2108	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2109	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2110	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2111	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2112	1-216-841-11	METAL CHIP	47K	5%	1/16W
R2113	1-218-851-11	METAL CHIP	1.5K	0.5%	1/10W
R2114	1-218-857-11	METAL CHIP	2.7K	0.5%	1/10W
R2115	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R2116	1-216-842-11	METAL CHIP	56K	5%	1/16W
R2117	1-218-837-11	METAL CHIP	390	0.5%	1/10W
R2118	1-216-842-11	METAL CHIP	56K	5%	1/16W
R2119	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R2120	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R2121	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R2122	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R2123	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R2124	1-218-833-11	METAL CHIP	270	0.5%	1/10W
R2126	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R2127	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R2128	1-218-863-11	METAL CHIP	4.7K	0.5%	1/10W

Ref. No.	Part No.	Description			
R2129	1-218-849-11	METAL CHIP	1.2K	0.5%	1/10W (DSR-45P)
R2129	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W (DSR-45)
R2130	1-218-849-11	METAL CHIP	1.2K	0.5%	1/10W (DSR-45P)
R2130	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W (DSR-45)
R2131	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R2134	1-218-863-11	METAL CHIP	4.7K	0.5%	1/10W
R2135	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R2136	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R2137	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R2138	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R2139	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R2140	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R2141	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R2142	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2143	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2144	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2145	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2146	1-218-823-11	METAL CHIP	100	0.5%	1/10W
R2147	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R2148	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2149	1-216-821-11	METAL CHIP	1K	5%	1/16W
R2150	1-218-873-11	METAL CHIP	12K	0.5%	1/10W
R2151	1-218-857-11	METAL CHIP	2.7K	0.5%	1/10W
R2152	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R2154	1-218-851-11	METAL CHIP	1.5K	0.5%	1/10W
R2155	1-216-864-11	METAL CHIP	0	5%	1/16W
R2157	1-218-867-11	METAL CHIP	6.8K	0.5%	1/10W
R2158	1-218-867-11	METAL CHIP	6.8K	0.5%	1/10W
R2161	1-216-813-11	METAL CHIP	220	5%	1/16W
R2163	1-218-851-11	METAL CHIP	1.5K	0.5%	1/10W
R2164	1-218-858-11	METAL CHIP	3K	0.5%	1/10W
R2165	1-218-857-11	METAL CHIP	2.7K	0.5%	1/10W
R2166	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R2167	1-218-851-11	METAL CHIP	1.5K	0.5%	1/10W
R2170	1-218-827-11	METAL CHIP	150	0.5%	1/10W
R2171	1-218-827-11	METAL CHIP	150	0.5%	1/10W
R2172	1-218-858-11	METAL CHIP	3K	0.5%	1/10W
R2175	1-218-858-11	METAL CHIP	3K	0.5%	1/10W
R2177	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2178	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R2179	1-216-833-11	METAL CHIP	10K	5%	1/16W
R2180	1-218-827-11	METAL CHIP	150	0.5%	1/10W
R2181	1-218-827-11	METAL CHIP	150	0.5%	1/10W
R2182	1-218-827-11	METAL CHIP	150	0.5%	1/10W
R2183	1-218-827-11	METAL CHIP	150	0.5%	1/10W
R2184	1-216-841-11	METAL CHIP	47K	5%	1/16W
R2185	1-218-827-11	METAL CHIP	150	0.5%	1/10W
R2186	1-218-827-11	METAL CHIP	150	0.5%	1/10W
R2187	1-218-827-11	METAL CHIP	150	0.5%	1/10W
R2188	1-218-827-11	METAL CHIP	150	0.5%	1/10W
R2189	1-218-827-11	METAL CHIP	150	0.5%	1/10W
R2190	1-218-827-11	METAL CHIP	150	0.5%	1/10W
R2191	1-218-827-11	METAL CHIP	150	0.5%	1/10W
R2192	1-218-827-11	METAL CHIP	150	0.5%	1/10W
R2193	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R2917	1-218-863-11	METAL CHIP	4.7K	0.5%	1/10W

Ref. No.	Part No.	Description
		< COMPOSITION CIRCUIT BLOCK >
RB001	1-239-437-91	NETWORK RESISTOR (CHIP) 39K
RB002	1-239-437-91	NETWORK RESISTOR (CHIP) 39K
		< VIBRATOR >
X001	1-767-617-11	OSCILLATOR, CRYSTAL (14.31818MHz) (DSR-45)
X001	1-795-080-21	OSCILLATOR, CRYSTAL (14.1875MHz) (DSR-45P)
X002	1-767-617-11	OSCILLATOR, CRYSTAL (14.31818MHz) (DSR-45)
X002	1-767-619-11	OSCILLATOR, CRYSTAL (17.734475MHz) (DSR-45P)
X201	1-795-085-21	VIBRATOR, CRYSTAL (14.318182MHz) (DSR-45)
X202	1-567-344-31	VIBRATOR, CRYSTAL (VCO) (17.734475MHz) (DSR-45P)
X502	1-767-879-11	VIBRATOR, CERAMIC (1.2288MHz)
X503	1-781-472-11	VIBRATOR, CERAMIC (8MHz)
X701	1-767-450-11	VIBRATOR, CERAMIC (20MHz)
X702	1-760-458-21	VIBRATOR, CRYSTAL (32.768kHz)
X703	1-579-738-21	VIBRATOR, CRYSTAL (14.318182MHz)
X1501	1-579-466-11	VIBRATOR, CRYSTAL (3.579545MHz) (DSR-45)
X1501	1-579-661-21	OSCILLATOR, CRYSTAL (4.433619MHz) (DSR-45P)

Ref. No.	Part No.	Description
	A-7078-208-A	XL-005 BOARD, COMPLETE ***********************
		< CONNECTOR >
CN251	1-793-476-11	CONNECTOR, FFC/FPC 12P
CN252	1-750-787-11	CONNECTOR (XLR TYPE) 3P (AUDIO OUT (CH-1))
CN254	1-750-787-11	CONNECTOR (XLR TYPE) 3P (AUDIO OUT (CH-2))
CN256	1-750-787-11	CONNECTOR (XLR TYPE) 3P (AUDIO OUT (CH-3))
CN258	1-750-787-11	CONNECTOR (XLR TYPE) 3P (AUDIO OUT (CH-4))
		< DIODE >
D251	8-719-062-19	DIODE MA3200WA-TX
D252	8-719-062-19	DIODE MA3200WA-TX
D253	8-719-062-19	DIODE MA3200WA-TX
D254	8-719-062-19	DIODE MA3200WA-TX
D255	8-719-062-19	DIODE MA3200WA-TX
D256	8-719-062-19	DIODE MA3200WA-TX
D257	8-719-062-19	DIODE MA3200WA-TX
D258	8-719-062-19	DIODE MA3200WA-TX
		< SHORT >
JS252	1-216-295-91	SHORT 0
JS253	1-216-295-91	SHORT 0
JS255	1-216-295-91	SHORT 0
JS258	1-216-295-91	SHORT 0
JS260	1-216-295-91	SHORT 0
JS262	1-216-295-91	SHORT 0
JS264	1-216-295-91	SHORT 0
JS266	1-216-295-91	SHORT 0

XL-005

Ref. No.	Part No.	Description			
		< RESISTOR >			
R251	1-216-097-11	RES-CHIP	100K	5%	1/10W
R252	1-216-097-11	RES-CHIP	100K	5%	1/10W
R253	1-216-097-11	RES-CHIP	100K	5%	1/10W
R254	1-216-097-11	RES-CHIP	100K	5%	1/10W
R255	1-216-097-11	RES-CHIP	100K	5%	1/10W
R256	1-216-097-11	RES-CHIP	100K	5%	1/10W
R257	1-216-097-11	RES-CHIP	100K	5%	1/10W
R258	1-216-097-11	RES-CHIP	100K	5%	1/10W

****

HARDWARE LIST

****

Ref. No.	Part No.	Description
#1	7-624-118-01	RING, RETAINING E-2.5
#2	7-621-772-80	SCREW +B 2X16
#3	7-682-547-04	SCREW +B 3X6
#4	7-621-772-10	SCREW +B 2X4
#5	7-682-947-01	+PSW 3X6

ACCESSORIES & PACKING MATERIALS

****

	1-477-220-11	REMOTE COMMANDER (RMT-DS5)
⚠	1-551-812-11	CORD, POWER (DSR-45)
⚠	1-782-929-11	CORD, POWER SUPPLY (BS 3P) (DSR-45P)
	3-073-885-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH)
	3-073-885-21	MANUAL, INSTRUCTION (GERMAN, ITALIAN) (DSR-45P)
	3-075-336-11	MANUAL, PROGRAMMER INSTRUCTION (ENGLISH)
	3-076-233-01	BATTERY COVER (for RMT-DS5)
	8-883-121-64	TAPE, DV CASSETTE DVM-4CLD J (DSR-45)
	8-883-121-64	TAPE, DV CASSETTE DVM-4CLD J (DSR-45P)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Sony EMCS Co.

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DSR-45/45P
RMT-DS5

SONY

SERVICE MANUAL

Ver 1.2 2003. 05

US Model
Canadian Model
DSR-45
AEP Model
UK Model
E Model
Australian Model
New Zealand Model
DSR-45P

SUPPLEMENT-1

File this supplement with the service manual.

(PV02-023)

- **Change of a repair part**

SECTION 6
REPAIR PARTS LIST

6-2. ELECTRICAL PARTS LIST

Page	FORMER			NEW		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
		A-7095-083-A	JC-21 BOARD, COMPLETE **********************		A-7095-083-A	JC-21 BOARD, COMPLETE **********************
6-22	IC5003	6-801-574-01	IC MB91192PFF-G-151-BND-ER	IC5003	6-802-635-01	IC MB91192PFF-G-160-BND-ER (Note)

Note: After IC5003 on JC-21 board is replaced, changing data of page: C, address: BF is needed.
Be sure to perform the following data input.

Input method:
1) Select page: 0, address: 01, and set data: 01.
2) Select page: C, address: BF, set data: F6, and press the PAUSE button of the adjustment remote commander.
3) Select page: 0, address: 01, and set data: 00.

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Revision History

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2002.04	Official Release	—	—
1.1	2002.07	Correction-1 (C1)	• Correction of ADJUSTMENT S.M. correction : Page 5-6, Page 5-51	Yes
1.2	2003.05	Supplement-1 (S1 PV02-023)	• Change of a repair part	No

DSR-45/45P

PROTOCOL MANUAL

Ver 1.0 2002. 04

US Model
Canadian Model
DSR-45
AEP Model
UK Model
E Model
Australian Model
New Zealand Model
DSR-45P

Photo: DSR-45

DIGITAL VIDEOCASSETTE PLAYER

DVCAM™

SONY®

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1. SUMMARY

The DSR series VTR, Remote Control Connector Panel, incorporate with a 9-pin D-Subminiature connectors for REMOTE. This connector is utilized for a serial control system.

The definition of CONTROLLER and DEVICE is shown in the follows,

“CONTROLLER” means the unit which controls VTR.
“DEVICE” means the unit (VTR) which is controlled.

Example 1)

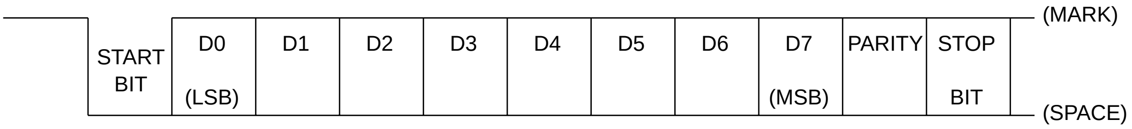
When the DSR series VTRs are connected by REMOTE (9-pin) connector, the VTR as the recorder means CONTROLLER and the VTR as the player means DEVICE.

Example 2)

When the editing controller is connected with one or plural DSR series VTR (s), this editing controller is CONTROLLER and all VTRs are DEVICEs.

2. INTERFACE SYSTEM OVERVIEW

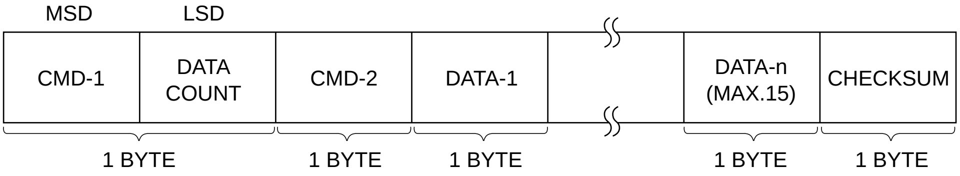
- Conforming to EIA RS-422A.
- Full duplex communications channel is utilized.
- Data is transmitted asynchronously, bit serial, word serial with data exchange between devices.
- Standard transmission rate on the interface bus is 38.4 kilobits per second (kb/s).
- The data word utilized by the interface system is as follows :



- 1 START BIT + 8 DATA BITs + 1 PARITY BIT + 1 STOP BIT.
  ODD parity : The total of D0 + D1 + ······ D7 + Parity bit equals an odd number.

3. COMMAND BLOCK FORMAT (CMD BLOCK)

The communication between the CONTROLLER and the DEVICE is composed of CMD-1 + DATA COUNT, CMD-2+DATA and CHECKSUM, and is transmitted from CMD-1 + DATA COUNT in order.
When the DATA COUNT is zero, the DATA is not transmitted.
When it is not zero, the DATA corresponded with the value is inserted between CMD-2 and CHECKSUM.



CMD-1 : CMD-1 classifies the command into the main groups which indicates the function and direction of the data words to follow.

CMD-1	FUNCTION	DIRECTION CONTROLLER DEVICE
0	SYSTEM CONTROL	→
1	SYSTEM CONTROL RETURN	←
2	TRANSPORT CONTROL	→
4	PRESET & SELECT CONTROL	→
6	SENSE REQUEST	→
7	SENSE RETURN	←

DATA COUNT : DATA COUNT indicates the number of data words exist the following CMD-2. (0 to FH)

CMD-2 : CMD-2 is the designated COMMANND to the Device or the COMMAND return from the DEVICE.

DATA : The number of data words and their contents are defined by the specific CMD-2.

CHECKSUM : The CHECKSUM is the sum of the DATA (D0 to D7) contained in each data word, from CMD-1/DATA COUNT to last data word before CHECKSUM.
The CHECKSUM is used to verify data accuracy and reject communication sequence when contains the bit error.

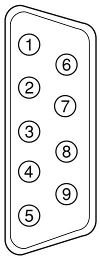
4. CONNECTOR PIN ASSIGNMENT

Interface connector : 9 pin D-subminiature female (D-9S)

The pin assignment for the CONTROLLER and the DEVICE is as shown in the following table.
The DSR series VTR equipped with the function as CONTROLLER (DSR-85/85P) is become pin assignment of CONTROLLER when executing QSDI dubbing.
Except for that, it's become pin assignment of DEVICE.

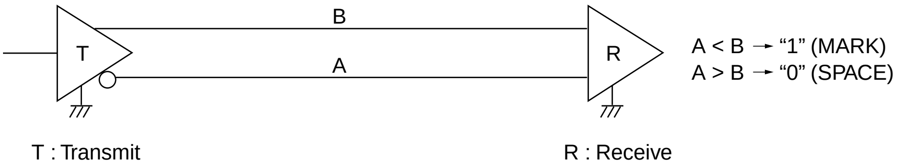
The VTR not had the function as CONTROLLER (DSR-60/60P, DSR-40/40P) is always become pin assignment of DEVICE.

Signal / Pin	CONTROLLER	DEVICE
1	Frame Ground	Frame Ground
2	Receive A	Transmit A
3	Transmit B	Receive B
4	Transmit Common	Receive Common
5	Spare	Spare
6	Receive Common	Transmit Common
7	Receive B	Transmit B
8	Transmit A	Receive A
9	Frame Ground	Frame Ground



External view

A and B are defined as shown below.



5. COMMUNICATION PROTOCOL

1) All communication between the CONTROLLER and the DEVICE will be under the direct supervision of the CONTROLLER.
When the DEVICE receives the COMMAND sent from CONTROLLER, the following COMMAND is returned.

- In case that the DEVICE receives the COMMAND not required the data
.... ACK
- In case that the DEVICE receives the COMMAND required the data
.... COMMAND + DATA
- In case that the error communication is detected or the undefined COMMAND is received
.... NAK + ERROR DATA

2) The CONTROLLER is not transmit additional COMMAND blocks to a DEVICE prior to receivers an appropriate response to a previous COMMAND block.

3) The CONTROLLER is not interrupt transmission of a byte in a COMMAND block for more than 10 ms. A DEVICE detecting an interruption of a byte in a COMMAND BLOCK that exceeds 15 ms.
CONTROLLER execute a TIME-OUT error sequence.
A DEVICE will void the receiving COMMAND block and transmit a NAK (TIME OUT).

4) A DEVICE, following receipt of a COMMAND Block from the CONTROLLER will transmit a response within 9 ms. Therefore if the CONTROLLER cannot receive the appropriate response from the DEVICE within 10 ms. After performing the COMMAND block transmission, it will execute as the communication is not performed under the normal condition, and it will process as necessary.

5) The DEVICE, upon detection of an error, it will immediately transmit a NAK to the CONTROLLER. (The contents of an error is shown on the COMMAND tables.)
The CONTROLLER, upon receipt of NAK, it will immediately stop transmission of the COMMAND block. The DEVICE, following transmission of NAK, it will receive a subsequent COMMAND block within 10 ms. (except NAK-UNDEFINED COMMAND) and will process as necessary.

6. COMMAND TABLE

The marks shown in the tables mean the following contents.

1) O marked COMMAND's model can correspond. If the contents are in the RETURN column, RETURN + DATA will be returned.
   If the contents are not in the RETURN column, "10•01 : ACK" will be returned.
2) △ marked COMMAND returns ACK as RETURN, but does not operate.
3) Except O and △ marked COMMAND does not correspond and returns "11. 12. 01 : NAK UNDEFINED.

COMMAND	RETURN	DSR-45/45P
00•11 : DEVICE TYPE REQUEST	12•11 : DEVICE TYPE	O
20•00 : STOP	ACK	O
20•01 : PLAY		O
20•02 : REC		O
20•04 : STANDBY OFF		O
20•05 : STANDBY ON		O
20•0F : EJECT		O
20•10 : FAST FWD		O
2X•11 : JOG FWD		O
2X•12 : VAR FWD		O
2X•13 : SHUTTLE FWD		O
20•20 : REWIND		O
2X•21 : JOG REV		O
2X•22 : VAR REV		O
2X•23 : SHUTTLE REV		O
20•30 : PREROLL		O
24•31 : CUE UP WITH DATA		O
20•40 : PREVIEW		△
20•41 : REVIEW		△
20•42 : AUTO EDIT		△
20•52 : TENSION RELEASE		△
20•54 : ANTI-CLOG TIMER DISABLE		O
20•55 : ANTI-CLOG TIMER ENABLE		O
20•60 : FULL EE OFF		△
20•61 : FULL EE ON		△
20•63 : SELECT EE ON		△
20•64 : EDIT OFF		△
20•65 : EDIT ON		△

COMMAND	RETURN	DSR-45/45P
44•00 : TIMER-1 PRESET	ACK	O
44•04 : TIME CODE PRESET		O
4X•05 : USER'S BIT PRESET		O
40•08 : TIMER-1 RESET		O
40•10 : IN ENTRY		O
40•11 : OUT ENTRY		O
40•12 : A IN ENTRY		O
40•13 : A OUT ENTRY		O
44•14 : IN DATA PRESET		O
44•15 : OUT DATA PRESET		O
44•16 : A IN DATA PRESET		O
44•17 : A OUT DATA PRESET		O
40•18 : IN SHIFT +		O
40•19 : IN SHIFT –		O
40•1A : OUT SHIFT +		O
40•1B : OUT SHIFT –		O
40•1C : A IN SHIFT +		O
40•1D : A IN SHIFT –		O
40•1E : A OUT SHIFT +		O
40•1F : A OUT SHIFT –		O
40•20 : IN RESET		O
40•21 : OUT RESET		O
40•22 : A IN RESET		O
40•23 : A OUT RESET		O
4X•30 : EDIT PRESET		△
44•31 : PREROLL TIME PRESET		O
41•36 : TIMER MODE SELECT		O
43•3F : Δt REC/PLAY PRESET		△
40•40 : AUTO MODE OFF		O
40•41 : AUTO MODE ON		O
40•44 : AUDIO SPLIT OFF		O
40•45 : AUDIO SPLIT ON		O

COMMAND	RETURN	DSR-45/45P
61•0C : CURRENT TIME SENSE	74•00 : TIMER-1 DATA	O
	74•04 : LTC TIME DATA	O
	78•04 : LTC TIME&UB DATA	O
	74•05 : LTC UB DATA	O
	74•06 : VITC TIME DATA	O
	78•06 : VITC TIME & UB DATA	O
	74•07 : VITC UB DATA	O
	74•14 : LTC INTERPOLATED TIME DATA	O
	78•14 : LTC INTERPOLATED TIME&UB DATA	O
	74•16 : VITC HOLD TIME DATA	O
	78•16 : VITC HOLD TIME & UB DATA	O
	70•0D : REQUEST TIME DATA MISSING	O
60•10 : IN DATA SENSE	74•10 : IN DATA	O
60•11 : OUT DATA SENSE	74•11 : OUT DATA	O
60•12 : A IN DATA SENSE	74•12 : A IN DATA	O
60•13 : A OUT DATA SENSE	74•13 : A OUT DATA	O
61•20 : STATUS SENSE	7X•20 : STATUS DATA	O
60•31 : PREROLL TIME SENSE	74•31 : PREROLL TIME DATA	O
60•36 : TIMER MODE SENSE	71•36 : TIMER MODE DATA	O

7. PROTOCOL COMMAND

00•11 : DEVICE TYPE REQUEST
12•11 : DEVICE TYPE

The “00•11 : DEVICE TYPE REQUEST” command is used to ask the model of the DEVICE to be connected, and if the DEVICE receives this command, the “12•11 : DEVICE TYPE” with 2 bytes data will be sent back as a response.

MODEL	DATA-1	DATA-2
DSR-45/45P	8X	31

DSR-45: X=0
DSR-45P: X=1

10•01 : ACK

When receiving this command, the DEVICE will send back this command as acknowledgement.

11•12 : NAK

When detecting the communication errors or receiving the undefined COMMAND, the CONTROLLER will send back this command as not-acknowledgement.
BIT7 to BIT0 of DATA-1 will be set in accordance with the contents.

[DATA-1]

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
TIME OUT	FRAMING ERROR	OVERRUN ERROR	PARITY ERROR		CHECKSUM ERROR	SOFTWARE OVERRUN	UNDEFINED COMMAND

20•00 : STOP
20•01 : PLAY
20•02 : REC
20•04 : STANDBY OFF
20•05 : STANDBY ON

When receiving one of the above commands, the DEVICE will be in the specified mode.
The “20•04 : STANDBY OFF” command is available only when the DEVICE is in STOP mode.

20•0F : EJECT

When receiving this command, the DEVICE ejects the cassette.

20•10 : FAST FWD
20•20 : REWIND

When receiving this command, the DEVICE will become the specified mode.

2X•11 : JOG FWD
2X•12 : VAR FWD
2X•13 : SHUTTLE FWD
2X•21 : JOG REV
2X•22 : VAR REV
2X•23 : SHUTTLE REV

When receiving one of the above commands, the DEVICE will start running in accordance with speed data defined by the DATA-1.

The tape speed will be defined as follows.

EX.

TAPE SPEED		SPEED
DSR-45	DSR-45P	
STILL	STILL	0
1/30	1/30	1 to 24
1/10	1/10	25 to 37
1/5	1/5	38 to 54
1	1	55 to 69
X2	X2	70 to 83
X9	X9	84 to 98
X14	X17	99 to

When the tape speed is or more than X2, it becomes ineffective for after DATA 2.

20•30 : PREROLL

When receiving this command, the DEVICE will be prerolled to the tape position, that is, the value obtained by subtracting the time defined by the “44•31 : PREROLL TIME PRESET” command from the TIMER DATA stored in the IN ENTRY memory by the “40•10 : IN ENTRY” command.

24•31 : CUE UP WITH DATA

The “24•31 : CUE UP WITH DATA” command is used for cueing up the DEVICE to the position assigned by the time data of DATA-1 through DATA-4. A unit of respective data are as follows :

DATA-1		DATA-2		DATA-3		DATA-4	
10 Frame	1 Frame	10 Second	1 Second	10 Minute	1 Minute	10 Hour	1 Hour
MSD	LSD	MSD	LSD	MSD	LSD	MSD	LSD

20•54 : ANTI-CLOG TIMER DISABLE
20•55 : ANTI-CLOG TIMER ENABLE

“20•54 : ANTI-CLOG TIMER DISABLE” prohibits the operation of the ANTI-CLOG TIMER.
“20•55 : ANTI-CLOG TIMER ENABLE” permitted the operation of the ANTI-CLOG TIMER.
When turning on the power, ANTI-CLOG TIMER ENABLE mode is in the enable mode.

44•00 : TIMER-1 PRESET

This command is used to preset the value, which has been given by the DATA-1 through DATA-4, to the TIMER-1 (CTL COUNTER) of the DEVICE.

The (Drop Frame/Non Drop Frame) mode of TIMER-1 is set corresponding to BIT6 of DATA-1 as the following table.

DATA-1/Bit6	DF
0	OFF
1	ON

For the data format, refer to “24•31 : CUE UP WITH DATA”.

Note: On the DSR-45/45P, the TIMER-1 is always set to the NDF mode regardless of the setting of DATA-1/BIT6.

44•04 : TIME CODE PRESET

This command is used to preset the value given by the DATA-1 through DATA-4 to the TIME CODE of the time code generator.

For the data format, refer to “24•31: CUE UP WITH DATA”.

The COLOR FRAMING of the time code generator and DF/NDF mode switching are set according to the setting of BIT7 and BIT6 of the DATA-1, as listed below.

DATA-1/Bit7	CF
0	OFF
1	ON

DATA-1/Bit6	DF
0	OFF
1	ON

On the DSR-45/45P, the setting of DF/NDF with BIT6 and COLOR FRAMING with BIT7 of DATA-1 is ineffective. The setting of the DEVICE becomes effective.

4X•05 : USER’S BIT PRESET

This command is used to preset the value given by the DATA-1 through DATA-4 to the USER’S BIT of the time code generator, and also to preset the corresponding bits in the time data given by DATA-5.

DATA-1		DATA-2		DATA-3		DATA-4	
2nd BINARY GROUP	1st BINARY GROUP	4th BINARY GROUP	3rd BINARY GROUP	6th BINARY GROUP	5th BINARY GROUP	8th BINARY GROUP	7th BINARY GROUP
MSD	LSD	MSD	LSD	MSD	LSD	MSD	LSD

[DATA-5 (Binary Group Flag setting)]

(DSR-45)

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
0	0	0	0	0	BIT-59 (BG2)	BIT-58 (BG1)	BIT-43 (BG0)

(DSR-45P)

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
0	0	0	0	0	BIT-43 (BG2)	BIT-58 (BG1)	BIT-27 (BC0)

Note: On the DSR-45, the setting of DATA-5 is ineffective.

40•08 : TIMER-1 RESET

This command is used to reset the TIMER-1 (COUNTER) to zero.

40•10 : IN ENTRY
40•11 : OUT ENTRY
40•12 : A IN ENTRY
40•13 : A OUT ENTRY
These commands are used to store the value of the TIMER or the TIME CODE data, which is displayed on the DEVICE, into the IN, OUT, A IN or A OUT memory as an IN POINT, OUT POINT, A IN POINT or A OUT POINT data.

44•14 : IN DATA PRESET
44•15 : OUT DATA PRESET
44•16 : A IN DATA PRESET
44•17 : A OUT DATA PRESET
These commands are used to preset the value, which has been given by the DATA-1 to DATA-4, into the IN, OUT, A IN or A OUT memory.
For the data format, refer to “24•31 : CUE UP WITH DATA”.

40•18 : IN SHIFT +
40•19 : IN SHIFT –
These commands are used to add or subtract the value of the TIME DATA, whichi has been stored as an IN POINT, by one frame.

40•1A: OUT SHIFT +
40•1B: OUT SHIFT –
These commands are used to add or subtract the value of the TIME DATA, which has been stored as an OUT POINT, by one frame.

40•1C: A IN SHIFT +
40•1D: A IN SHIFT –
These commands are used to add or subtract the value of the TIME DATA, which has been stored as an AUDIO IN POINT, by one frame.

40•1E: A OUT SHIFT +
40•1F : A OUT SHIFT –
These commands are used to add or subtract the value of the TIME DATA, which has been stored as an AUDIO OUT POINT, by one frame.

40•20 : IN RESET
40•21 : OUT RESET
40•22 : A IN RESET
40•23 : A OUT RESET
These commands are used to turn the IN, OUT, AUDIO IN or AUDIO OUT lamp to off.

44•31 : PREROLL TIME PRESET
This command is used to preset the preroll time, which has given by the DATA-1 through DATA-4, to the DEVICE.
For the data format, refer to “24•31 : CUE UP WITH DATA”.

EX. Preroll Time=5 sec.

DATA-1	DATA-2	DATA-3	DATA-4
0 0	0 5	0 0	0 0

41•36 : TIMER MODE SELECT

This command is used to select the TIMER system used in the AUTO mode by the value of DATA-1. This is used for the IN ENTRY, OUT ENTRY, IN PRESET, OUT PRESET, PREROLL and CUE UP WITH DATA, etc.

[DATA-1]
00 : TIME CODE
01 : TIMER-1
FF : Depends on the DEVICE.
Note: On the DSR-45/45P, the setting of FF selects the TIME CODE.

40•40 : AUTO MODE OFF
40•41 : AUTO MODE ON

This command is used to switch ON/OFF the AUTO mode of the DEVICE.
When receiving this command, this command does not have influence on the operation of the DEVICE.

40•44 : AUDIO SPLIT OFF
44•45 : AUDIO SPLIT ON

This command is used to switch ON/OFF the AUDIO SPLIT MODE of the DEVICE.
When receiving this command, this command does not have influence on the operation of the DEVICE.

61•0C : CURRENT TIME SENSE

This command is used for requesting the TIME DATA or USER BIT, and the DEVICE will make a response according to the contents of DATA-1.
When the accurate time data is requested in the normal playback mode, the following condition must be satisfied.

- Select external reference mode.
- CURRENT TIME SENSE command and its return must be completed within the field-2.

[DATA-1]
The response command according to the request command is as follows.

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
		VITC UB	LTC UB		TIMER-1	VITC TIME	LTC TIME
MSD				LSD			

REQUEST DATA-1 / RESPONSE	01	03	04	10	30	11[*3]	33[*3]
74•00 : TIMER-1 DATA			O				
74•04 : LTC TIME DATA	O	O					
78•04 : LTC TIME & UB DATA						O	O
74•05 : LTC U-BIT DATA				O	O		
74•06 : VITC TIME DATA		O[*2]					
78•06 : VITC TIME & UB DATA							O[*2]
74•07 : VITC U-BIT DATA					O[*2]		
74•14 : LTC INTERPOLATED TIME DATA	O	O					
78•14 : LTC INTERPOLATED TIME & UB DATA						O	O
74•16 : VITC HOLD TIME DATA		O[*2]					
78•16 : VITC HOLD TIME & UB DATA							O[*2]

Notes:

*1: The “70•0D: REQUEST TIME DATA MISSING” is returned, if the DATA-1 is other than the value listed in the above table.

*2: On the DSR-45/45P, the VITC DATA is not returned as the VITC READER is not built in. The LTC DATA is returned.

*3: If the request command DATA-1=11 or 33, the DEVICE returns the TIME DATA using the DATA-1 through DATA-4 of the response command, and the USER BIT DATA using the DATA-5 through DATA-8.

74•00 : TIMER-1 DATA

When the DEVICE is required the TIMER-1 data by the “61•0C : CURRENT TIME SENSE” command, the TIMER-1 data (COUNTER) will be added to the DATA-1 through DATA-4.
At that time, the DF/NDF mode of TIMER-1 is set to the BIT-6 of DATA-1.
For the data format, refer to “24•31 : CUE UP WITH DATA”.

74•04 : LTC TIME DATA

When the DEVICE is required the LTC TIME DATA by the “61•0C : CURRENT TIMER SENSE” command, the LTC TIME DATA will be added to the DATA-1 through DATA-4.
For the data format, refer to “24•31 : CUE UP WITH DATA”.

78•04 : LTC TIME & UB DATA

When the DEVICE is requested the LTC TIME DATA and USER’S BIT DATA by the “61•0C: CURRENT TIME SENSE” command, it returns the LTC TIME DATA added to the DATA-1 through DATA-4, and the LTC USER’S BIT DATA added to the DATA-5 through DATA-8.
For the data format, refer to “24•31: CUE UP WITH DATA” and “4X•05: USER’S BIT PRESET”.

74•05 : LTC UB DATA

When the DEVICE is requested the LTC USER’S BIT DATA by the “61•0C: CURRENT TIME SENSE” command, it returns the LTC USER’S BIT DATA added to the DATA-1 through DATA-4.
For the data format, refer to “4X•05: USER’S BIT PRESET”.

74•14 : LTC INTERPOLATED TIME DATA

When the DEVICE is required the LTC TIME DATA by the “61•0C : CURRENT TIME SENSE” command and it interpolates with CTL or it had not read exactly, the LTC TIME DATA will be added to the DATA-1 through DATA-4.
For the data format, refer to “24•31 : CUE UP WITH DATA”.

78•14 : LTC INTERPOLATED TIME & UB DATA

When the DEVICE is requested the LTC TIME DATA and USER’S BIT DATA by the “61•0C: CURRENT TIME SENSE” command, but the LTC TIME DATA used by the CONTROLLED DEVICE is interpolated with the CTL, it returns the LTC TIME DATA added to the DATA-1 through DATA-4, and the LTC USER’S BIT DATA added to the DATA-5 through DATA-8.
For the data format, refer to “24•31: CUE UP WITH DATA” and “4X•05: USER’S BIT PRESET”.

60•10 : IN DATA SENSE
60•11 : OUT DATA SENSE
60•12 : A IN DATA SENSE
60•13 : A OUT DATA SENSE

These commands are used to request the IN/OUT DATA and the AUDIO IN/A OUT DATA.
For the data format, refer to “24•31 : CUE UP WITH DATA”.

REQUEST COMMAND	RESPONSE COMMAND
IN DATA SENSE	“74•10 : IN DATA”
OUT DATA SENSE	“74•11 : OUT DATA”
A IN DATA SENSE	“74•12 : A IN DATA”
A OUT DATA SENSE	“74•13 : A OUT DATA”

74•10 : IN DATA

When the DEVICE receives the “60•10 : IN DATA SENSE” command, the IN point will be added to the DATA-1 through DATA-4 of the “74•10 : IN DATA”.
For the data format, refer to “24•31 : CUE UP WITH DATA”.

74•11 : OUT DATA

When the DEVICE receives the “60•11 : OUT DATA SENSE” command, the OUT point will be added to the DATA-1 through DATA-4 of the “74•11 : OUT DATA”.
For the data format, refer to “24•31 : CUE UP WITH DATA”.

74•12 : A IN DATA

When the DEVICE receives the “60•12 : A IN DATA SENSE” command, the AUDIO IN point will be added to the DATA-1 through DATA-4 of the “74•12 : A IN DATA”.
For the data format, refer to “24•31 : CUE UP WITH DATA”.

74•13 : A OUT DATA

When the DEVICE receives the “60•13 : A OUT DATA SENSE” command, the AUDIO OUT point will be added to the DATA-1 through DATA-4 of the “74•13 : A OUT DATA”.
For the data format, refer to “24•31 : CUE UP WITH DATA”.

61•20 : STATUS SENSE

This command is used for requesting the status of the DEVICE, and DATA-1 added by the command appoints the contents of “STATUS DATA” to send back.

[DATA-1]

BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
MSD				LSD			

MSD (BIT7 to 4) : Indicates the initial Data No. of the “7X•20 : STATUS DATA” to be sent back.
LSD (BIT3 to 0) : Indicates the number of data bytes in “7X•20 : STATUS DATA” to be sent back.

EX. When the DATA-1 of the “61•20 : STATUS SENSE” command is 2A.

The DEVICE will send back ten bytes from the DATA No.2, i. e.
DATA No.2 to DATA No.B, of the “7X•20 : STATUS DATA”.

7X•20 : STATUS DATA

This return command is returned in response to the “61•20 : STATUS SENSE” command from the DEVICE. The DEVICE returns the following data in accordance with the request.

STATUS DATA

DATA No.	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
0			CASSETTE OUT					LOCAL
1	STANDBY ON		STOP	EJECT	REW	F.FWD	REC	PLAY
2	SERVO LOCK		SHUTTLE	JOG	VAR	REV/FWD	STILL	CUE UP COMPLETE
3	AUTO MODE				AUDIO OUT	AUDIO IN	OUT	IN
4								PREROLL OR CUE UP
5								
6								
7			AUDIO SPLIT					
8				END OF TAPE				REC INHIBIT
9								
A								
B								
C								
D								
E								
F								

DATA No.0

DATA No.0/BIT5 : CASSETTE OUT

BIT5 will be set to “1” when there is no cassette threading on the DEVICE.

DATA No.0/BIT0 : LOCAL

BIT0 will be set to “1” when the REMOTE/LOCAL switch on the front panel is set to “LOCAL”.

DATA No.1

DATA No.1/BIT7 : STANDBY

BIT7 will be set to “1” when the DEVICE is the STANDBY ON mode.

DATA No.1/BIT5 : STOP

BIT5 will be set to “1” when the DEVICE receives the “20•00 : STOP” command and goes into the STOP mode.

DATA No.1/BIT4 : EJECT

BIT4 will be set to “1” when the DEVICE receives the “20•0F : EJECT” command and goes into the EJECT mode.

DATA No.1/BIT3 : REW

BIT3 will be set to “1” when the DEVICE receives the “20•20 : REWIND” command and goes into the REWIND mode.

DATA No.1/BIT2 : F.FWD

BIT2 will be set to “1” when the DEVICE receives the “20•10 : FAST FWD” command and goes into the FAST FORWARD mode.

DATA No.1/BIT1 : REC

BIT1 will be set to “1” when the DEVICE receives the “20•02 : REC” command and goes into the REC mode.
BIT1 will be also set to “1” when “DATA No.4/BIT4 EDIT” is set to “1”.

DATA No.1/BIT0 : PLAY

BIT0 will be set to “1” when the DEVICE receives the “20•01 : PLAY”, “20•02 : REC” or “20•65 : EDIT ON” command and goes into the PLAY, REC or EDIT mode.

DATA No.2

DATA No.2/BIT7 : SERVO LOCK

BIT7 will be set to “1” when the DEVICE is in the condition that the drum and the capstan servos are locked in the PLAY mode.

DATA No.2/BIT5 : SHUTTLE

BIT5 will be set to “1” when the DEVICE receives the “2X•13 : SHUTTLE FWD” or “2X•23 : SHUTTLE REV”, and goes into the SHUTTLE mode.

DATA No.2/BIT4 : JOG

BIT4 will be set to “1” when the DEVICE receives the “2X•11 : JOG FWD” or “2X•21 : JOG REV”, command and goes into the JOG mode.

DATA No.2/BIT3 : VAR

BIT3 will be set to “1” when the DEVICE is receives “2X•12 : VAR FWD” or “2X•22 : VAR REV”, command and goes into the VAR mode.

DATA No.2/BIT2 : TAPE DIRECTION

BIT2 shows the tape direction defined in the DEVICE.

0=FWD
1=REV

DATA No.2/BIT1 : STILL

BIT1 will be set to “1” when the DEVICE is STOP mode or STILL mode of SHUTTLE/JOG/VAR.

DATA No.2/BIT0 : CUE UP COMPLETE

BIT0 will be set to “1” when the DEVICE receives “20•30 : PREROLL” and “24•31 : CUE UP WITH DATA” commands and then cue-up operation is completed successfully.

DATA No.3

DATA No.3/BIT7 : AUTO MODE

BIT7 will be set to “1” when the DEVICE receives the “40•41 : AUTO MODE ON” command.

DATA No.3/BIT3 : AUDIO OUT
DATA No.3/BIT2 : AUDIO IN
DATA No.3/BIT1 : OUT
DATA No.3/BIT0 : IN

When the DEVICE receives ENTRY, PRESET and RECALL commands of each editing point (IN, OUT, AUDIO IN or AUDIO OUT), the corresponded bit will be set to “1”, and TIMER-1 or TIME CODE data is memorized.

DATA No.4

DATA No.4/BIT0 : PREROLL OR CUE UP

BIT0 will be set to “1” when the DEVICE receives the “20•30 : PREROLL” and “24•31 : CUE UP WITH DATA” commands, and goes into the PREROLL and CUE-UP mode, and BIT0 will be also set to “1” when the PREROLL is performed in the AUTO EDIT or PREVIEW mode.

DATA No.7

DATA No.7/BIT5 : AUDIO SPLIT

BIT5 will be set to “1” when the DEVICE receives the “40•45 : AUDIO SPLIT ON” command, and goes into the AUDIO SPLIT mode.

DATA No.8

DATA No.8/BIT4 : END OF TAPE

BIT4 will be set to “1” when the DEVICE detects BEGIN or END of the cassette tape.

DATA No.8/BIT0 : REC INHIBIT

BIT0 will be set to “1” when the REC INHIBIT plug on the cassette is set.

60•31 : PREROLL TIME SENSE

This command is used to request the PREROLL TIME setting status of the DEVICE.
When the DEVICE receives this command, it is sent back the “74•31 : PREROLL TIME DATA” with DATA1 to DATA4 that shows the PREROLL TIME setting status.

74•31 : PREROLL TIME DATA

This return command is returned in response to the “60•31 : PREROLL TIME SENSE” command, from the CONTROLLER. The DEVICE returns the PREROLL TIME DATA in accordance with the request.
For the data format, refer to “24•31 : CUE UP WITH DATA”.

60•36 : TIMER MODE SENSE

This command is used to request the TIMER MODE or TIME CODE of the DEVICE. When the DEVICE receives this command, it returns the “71•36 : TIMER MODE DATA” command. The TIMER MODE DATA with DATA-1 that shows the setting will be sent back.

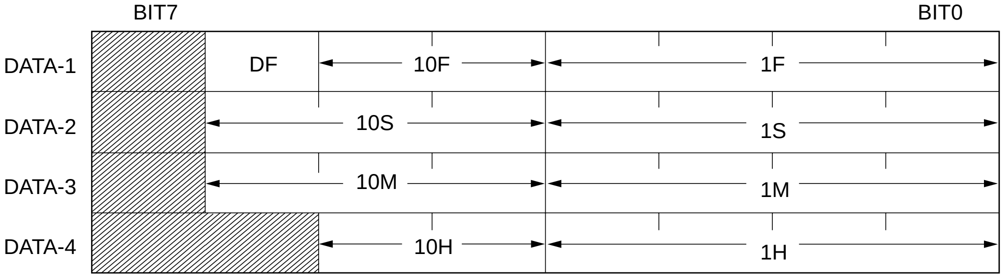
71•36 : TIMER MODE DATA

This return command is returned in response to the “60•36 : TIMER MODE SENSE” command from the CONTROLLER. The DEVICE returns the value of setting in accordance with the request.

[DATA-1]
00 : TIME CODE
01 : TIMER-1

8. TIME DATA FORMAT

The following shows the time data format used by commands such as “24•31 : CUE UP WITH DATA”.



	BIT7							BIT0
DATA-1	▨	DF	10F		1F			
DATA-2	▨	10S			1S			
DATA-3	▨	10M			1M			
DATA-4	▨	▨	10H		1H			

Although the shaded null bits have no meaning as time data, they are set in the following cases.

1. DATA-1 BIT6 : DF FLAG (“1” DF, “0” NDF)...Only for NTSC model
   This bit is set in a response command from DEVICE of “61•0C : CURRENT TIME SENSE” according to the DF or NDF mode of DEVICE.
   It is also set to specify the DF or NDF mode of the TIME CODE GENERATOR of DEVICE of “44•04 : TIME CODE PRESET”.

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